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SPECIAL TRANSPORTATION SERVICES FOR THE
ELDERLY AND HANDICAPPED DEMONSTRATION
PROJECT - BATON ROUGE, LOUISIANA

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FINAL REPORT

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NOTICE

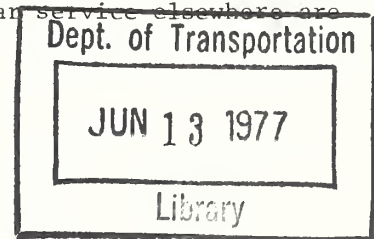
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16. Abstract In July 1972 the Urban Mass Transportation Administration, under its Service Development Program, awarded an 18-month grant to the City of Baton Rouge to demonstrate the feasibility of establishing a "modern, cost-effective method of transporting the aged and disabled by means of a specially designed system, separate from conventional public transit, but coordinated with the community's existing public transportation resources." After a delay of 21 months, the specialized transportation services grant was signed and planning and staffing were implemented. This final report details a chronology of what happened leading up to and during the conduct of the specialized services. In addition, programs encountered and steps taken to resolve these problems are presented. Statistics on system clients, trips, and costs are presented for the 12 months of STS system operation. Where appropriate, implications that might bear on the initiation of a similar service elsewhere are set forth.					
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PREFACE

This final report on the Baton Rouge Special Transportation Services (STS) for the Elderly and Handicapped Demonstration Project is being submitted to the Transportation Systems Center (TSC) in Cambridge, Massachusetts by CACI, Inc. - Federal under contract DOT-TSC-1082. Much of the basic information was developed by the STS Project Team under its former manager, Harry Reed, during and following the demonstration. Most of the data were prepared by Southern University's Transportation Center and extracted from its report to the STS, "The Special Transportation Services Project for the Elderly and Handicapped: An Analysis of the Outcome in Baton Rouge, Louisiana," August, 1975. Data for the final five months of the project, where available, were also compiled by the Transportation Center of Southern University and the STS Project Office. Significant technical and editorial contributions to this final report were made by Ms. Carla Heaton and Mr. Robert Waksman of the Transportation Systems Center.

METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures

Symbol	What You Know	Multiply by	To Find	Symbol
LENGTH				
in	inches	2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
AREA				
in ²	square inches	6.5	square centimeters	cm ²
ft ²	square feet	0.09	square meters	m ²
yd ²	square yards	0.8	square meters	m ²
mi ²	square miles	2.6	square kilometers	km ²
	acres	0.4	hectares	ha
MASS (weight)				
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons (2000 lb)	0.9	tonnes	t
VOLUME				
tap	teaspoons	5	milliliters	ml
Thsp	tablespoons	15	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0.24	liters	l
pt	pints	0.47	liters	l
qt	quarts	0.95	liters	l
gal	gallons	3.8	liters	l
ft ³	cubic feet	0.03	cubic meters	m ³
yd ³	cubic yards	0.76	cubic meters	m ³
TEMPERATURE (exact)				
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

Approximate Conversions from Metric Measures

Symbol	What You Know	Multiply by	To Find	Symbol
LENGTH				
mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
km	kilometers	1.1	yards	yd
		0.6	miles	mi
AREA				
cm ²	square centimeters	0.16	square inches	in ²
m ²	square meters	1.2	square yards	yd ²
km ²	square kilometers	0.4	square miles	mi ²
ha	hectares (10,000 m ²)	2.5	acres	
MASS (weight)				
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	
VOLUME				
ml	milliliters	0.03	fluid ounces	fl oz
l	liters	2.1	pints	pt
l	liters	1.06	quarts	qt
l	liters	0.26	gallons	gal
m ³	cubic meters	35	cubic feet	ft ³
m ³	cubic meters	1.3	cubic yards	yd ³
TEMPERATURE (exact)				
°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F

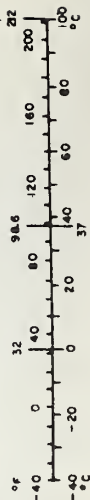


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EXECUTIVE SUMMARY

The Baton Rouge, Louisiana, Special Transportation Services (STS) for the Elderly and Handicapped (E/H) Demonstration Project was sponsored by the Urban Mass Transportation Administration (UMTA). The project was conducted under an 18-month service development grant using Section 6 funds in the amount of \$171,050, with local matching funds and in-kind services of \$85,525. The demonstration service commenced in September of 1974 and concluded in December of 1975.

The service offered during this demonstration was free, pre-scheduled, door-to-door transportation, aimed specifically at meeting medically related transportation demands of the E/H. The project was intended:

To demonstrate a modern, cost-effective method of transporting the aged and disabled by means of a specially designed system, separate from conventional public transit, but coordinated with the community's existing public transportation resources.¹

S.1 THE SPECIAL TRANSPORTATION SYSTEM

The special service offered by this system consisted of door-to-door, pre-scheduled pick-up and delivery functions, dispatched through a central control facility. The STS was managed as a division of a local public transportation firm, the Capitol Transportation Corporation (CTC). The STS was not, however, coordinated with existing public transit routes.

At the time the demonstration reached its full operational complement of vehicles, five Chevrolet Sports Vans

¹Parish of East Baton Rouge and City of Baton Rouge, Application for Mass Transportation Demonstration Grant, Project Description, May 1972.

were in operation. A sixth van was held in reserve to substitute when another van was in maintenance or repair. Each van was significantly modified during the course of the demonstration, to meet varying needs of the E/H clients, with two vans fitted to handle wheelchair clients.

In order to use the demonstration service, pre-screened and eligible E/H were required to call in to a central location with their trip requirements, at least one day in advance. Eligibility requirements were clearly set forth during the planning stages of the project, but had some flexibility to allow modifications as conditions changed. The STS central coordinator/dispatcher would confirm eligibility and then schedule the client, taking into consideration other demands on the system for that time period. When conflicts arose, every effort was made by STS personnel to make appropriate adjustments (e.g., check with a doctor's office to see whether an appointment could be moved without too great a hardship). Most of these scheduling conflicts were resolved.

S.2 THE BATON ROUGE SERVICE AREA

The demonstration project was located in and around the capitol city of Baton Rouge, Louisiana, encompassing approximately 88 square miles. In an effort to equalize the potential client distribution, and because only five vans would be available for operation, the service area was divided into five sectors. Using 1970 Census data, an estimate of the target population was calculated to be 18,300 elderly and handicapped. Using the same 1970 Census data for comparative purposes, the following observations are made:

- 1) In general, the sectors of the service area indicating a lower socio-economic status provided proportionately greater numbers of clients for the STS.

- 2) In comparison to demographics for the United States as a whole, the Baton Rouge service area population was proportionately younger, had proportionately fewer people falling into the 65-and-above age category, and had a higher ratio of blacks to whites.

At the time STS was initiated, the E/H target group had several alternative travel modes available to them to reach the same medically related destinations as STS:

- 1) CTC provided fixed-route service at no cost to the elderly at the time the STS started. After September 1975, a 15-cent fare was required. No easy routing to the various medical destinations was available, and access and egress from the buses were particularly difficult for the E/H.
- 2) Taxi services, while available, were used infrequently, due to high costs. Difficult access and egress necessitated companions for most taxi trips, since the drivers were reluctant to serve the E/H due to potential personal liabilities. Typical one-way taxi costs ranged from \$2.00 to \$4.00.
- 3) Social service agencies offered similar service through vans and autos, but this service was highly dependent upon availability of vehicles and was not provided on a pre-established schedule.
- 4) Prior to initiation of the STS, approximately 50% of the medically related trips taken by STS users were provided by relatives, in private autos.

S.3 PROJECT FINDINGS AND CONCLUSIONS

Table S-1 summarizes some important information on STS usage and costs. Additional findings and conclusions are summarized below.

S.3.1 Project Objectives

The four objectives of the STS project are given below, as well as a summary of observations and conclusions on whether those objectives were or were not met.

S.3.1.1 Objective 1: Meet the Transportation Needs of the Elderly and Handicapped - Approximately 10% of the target population were certified to use the system as of August 31, 1975. Based upon processed data (as set forth in Table S-1), in March of 1975, 35% of those registered (2.4% of the target population) were, in fact, using the STS. Of the STS client trips, 13% required wheelchairs; and one-third of these required an additional companion.

S.3.1.2 Objective 2: Operate a Cost-Effective Method of Transporting the Aged and Disabled - STS costs do not seem unreasonable when compared to taxi prices for comparable trips. For the final four months of the demonstration period, average costs to STS per client trip were \$3.40 and slightly over \$10.00 per vehicle hour. If taxi operators were subsidized for such trips, it would cost \$3.00 for a 3-2/3-mile trip (the average STS user trip length). While costs for providing bus service, in the order of \$.55 per passenger, are considerably less, the evident disadvantages associated with access and egress problems, plus routing constraints, made the bus an unacceptable alternative for many E/H.

TABLE S-1. SUMMARY STATISTICAL TIME SERIES ON STS CLIENTS, TRIPS, AND COSTS¹

Month	Client Trips	No. of Diff. Clients Served Monthly	Avg No. of Vehicle Miles Per Vehicle/Day	Costs Per			Day of Opr.
				Vehicle Hour	Vehicle Mile	Client Trip	
September	239	79	33	\$12.60	\$3.84	\$33.73	\$504
October	855	199	75	9.44	1.26	10.16	378
November	1,899	279	101	10.32	1.02	4.35	413
December	2,066	314	108	11.69	1.08	4.75	468
January 1975	2,739	372	123	10.85	.88	3.49	434
February	2,738	422	133	11.44	.86	3.34	458
March	2,984	436 ²	133	11.82	.87	3.17	473
April	3,383	- 4	143	11.23	.79	2.92	449
May ³	3,432	- 4	127	10.02	.79	3.21	501
June	3,277	- 4	132	10.25	.77	3.28	512
July	3,120	- 4	120	10.23	.85	3.61	511
August	3,021	- 4	129	10.04	.78	3.49	502

¹Source: STS operational records.

²Of 1,237 registered at that time.

³A fifth operating vehicle added.

⁴Although these data were available in STS records, individual trip data were not processed for inclusion in the analyses in this report.

S.3.1.3 Objective 3: Provide the Transportation Services for the Elderly and Handicapped by Means of a Specially Designed System Separate From Public Transit - By offering a service which was much easier (door-to-door service, schedule flexibility, and vehicle entry/exit convenience) for the client to use than traditional public transit or taxi service, STS lessened client dependence on others and, in a sense increased client mobility. Most STS clients appear to be making trips using STS to the same destinations that they were visiting prior to STS. It does not appear that the STS generated many trips to new destinations. Only about 5% of STS clients surveyed indicated that they were using the STS to get to destinations that they previously never travelled to.

S.3.1.4 Objective 4: Coordinate the STS with the Existing Public Transit System - While no action was taken to integrate STS with the CTC schedule, consideration was given to coordinating the two operations. The most feasible method of doing so would have been to use the STS systems as a feeder system to CTC for those STS clients who could physically ride the bus. While there would be no problem in picking up STS clients and delivering them to the nearest bus route going to their destination, a problem would have developed in picking up clients for return to their homes. There was no way of knowing when a client would arrive at a certain bus stop on their return trip because there was no communications equipment on the buses to convey this information.

S.3.2 Implications for STS System Planning Operations

In considering the introduction of a similar specialized service, the following points should be noted:

- 1) Unnecessary and costly modifications in both hardware and operations might be avoided if a preliminary systems analysis on total vehicle-related requirements are undertaken.

- 2) Selection of vans better suited to the specialized use, will eliminate time-consuming and costly modifications. The following items should be considered before purchasing vans: ease of entry and exit, seating arrangements, ramp and lift loading devices, wheelchair tie-down devices, engine configuration and subsequent impact on maintenance time.
- 3) Adequate time should be allowed to obtain and install communications equipment and to apply for and receive FCC radio frequency and license, and to generate appropriate operating procedures.
- 4) Because of the need for capital investment on vans and major equipment items and the development of operational plans using origin and destination information, rigorous procedures should be employed to estimate the true target population, including disability mix and residence location.

Furthermore, client eligibility requirements must be carefully set forth prior to service initiation, to permit adjustment for differences between actual and expected demand. There exists a need to allow leeway for expansion of the system (the addition of non-medically related destinations, or the modification of eligibility requirements, for example) if expected demand is not realized.

S.3.3 STS Services and the Community

With respect to the users of the STS, the following observations can be made:

- 1) According to a Southern University Transportation Center survey, better than 90% of the system users considered the service as "good" or "excellent."
- 2) Several instances were noted in which user rehabilitation was effected -- a rehabilitation which might not have occurred without the STS.
- 3) Numerous medical facilities commented most favorably on the STS and its impact on the user group. In addition, cancellations in at least one of the major clinics dropped between 60% and 70% within the first year of STS operation.

1. INTRODUCTION

This report contains a description and analyses of the Special Transportation Services (STS) for the Elderly and Handicapped Demonstration Project in Baton Rouge sponsored by the Urban Mass Transportation Administration (UMTA). The service offered during this demonstration was free, pre-scheduled, door-to-door transportation, aimed specifically at meeting medically related demands of the elderly and handicapped (E/H). The service was provided through the existing public transportation organization, the Capitol Transportation Corporation (CTC), and was not affiliated with a social service agency.

The 18-month grant amounted to \$171,050, with local matching funds and in-kind services of \$85,525. This grant was awarded to the City of Baton Rouge using Section 6 funds.

This project was intended:

to demonstrate a modern, cost-effective method of transporting the aged and disabled by means of a specially designed system, separate from conventional public transit, but coordinated with the community's existing public transportation resources.¹

This broad objective was broken down into four specific project objectives:

- 1) Meet the transportation needs of the elderly and handicapped;

¹Parish of East Baton Rouge and City of Baton Rouge, Application for Mass Transportation Demonstration Grant, Project Description, May 1972.

- 2) Operate a cost-effective method of transporting the aged and disabled;
- 3) Provide the transportation services for the elderly and handicapped by means of a specially designed system separate from public transit; and,
- 4) Coordinate the STS with the existing public transit system.

The STS project was intended to test the feasibility of planning and implementing a specialized transportation service to provide access for the elderly and handicapped to medical services. This report addresses this fundamental issue and, with the Baton Rouge frame of reference, reviews the impact of this service in terms of comparative costs and availability of other transportation modes. In addition, the apparent impact of this service from a medical viewpoint on its clients is identified.

Within UMTA, the Services and Methods Demonstration (SMD) Program is intended to foster the development, demonstration, and evaluation of new techniques and methods for using current-generation transit equipment in providing a significantly improved quality and quantity of public transportation. To categorize projects for program planning and control purposes, UMTA set forth five major program objectives, one of which is to improve the mobility of the transit dependent. This project addresses this SMD objective.

The remainder of this report consists of the following chapters:

2. Service Area Characteristics

Highlights characteristics of the demonstration project service area, in terms of demographics and transportation for the E/H.

3. Demonstration Project Description

Describes events leading up to the demonstration project, the initial system planning, and subsequent system operations. Emphasized are what happened, problems encountered, and actions taken to resolve these problems.

4. STS Client, Trip, and Cost Information

Presents basic data collected during the demonstration project and identifies data sources. Discusses data in terms of clients, trips and STS operating and capital costs.

5. Project Findings and Conclusions

Places an emphasis on how well the germane E/H issues were resolved during the project and sets forth findings and conclusions which could have impacts on the introduction of similar medical transportation service for the E/H in other locales (i.e., transferability).

2. SERVICE AREA CHARACTERISTICS

In this chapter, Baton Rouge service area demographic and transportation characteristics are presented.

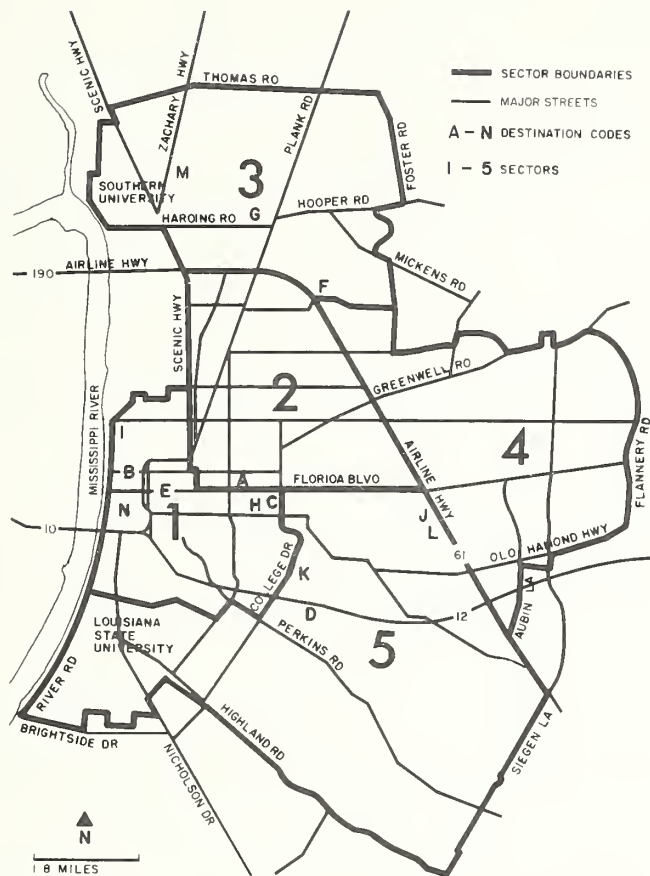
The service area for the Special Transportation Services (STS) is located in and around Baton Rouge, the capitol city of Louisiana, and encompasses an area of approximately 88 square miles. Baton Rouge is situated 85 miles north and west of New Orleans in the East Baton Rouge Parish¹ along the Mississippi River. There were no severe topological constraints which might have hindered service and, although annual rainfall averages between 55 and 65 inches, weather conditions did not tend to impede service either.

As shown in Figure 1, the service area consists of all of the City of Baton Rouge located east of the Mississippi River, as well as portions of the East Baton Rouge Parish not included in the Baton Rouge City limits. The service area is divided into the five numbered sectors indicated in Figure 1. Also indicated in Figure 1 are the 14 major STS client destinations. The service area was divided into five sectors because the STS planned to use only five vans for full service. Prior to start of the service, sector boundaries were established in an attempt to even out the number of potential clients in each sector. (Actual distribution of STS clients later proved to be heavily concentrated in the core city sectors.)

2.1 DEMOGRAPHICS

Table 1 contains 1970 census data on population and other key demographics of the service area, by sector and as a whole.

¹Parish is comparable to county in other states.



- | | |
|--|--|
| A - Baton Rouge General Hospital | G - Margaret Dumas Mental Health Center |
| B - Baton Rouge Mental Health Center | H - Medicenter of America |
| C - Baton Rouge Physical Therapy & Rehabilitation Center | I - Our Lady of the Lake Hospital |
| D - Doctor's Memorial Hospital | J - Perkins Radiation Center |
| E - East Baton Rouge Parish Health Unit | K - United Cerebral Palsy of Baton Rouge |
| F - Earl K. Long Hospital | L - Woman's Hospital |
| | M - Nutrition Center |
| | N - Nutrition Center (Pres. Church) |

Figure 1. Baton Rouge, Louisiana, its Environs, and the STS Service Area Sectors

TABLE 1. SELECTED 1970 CENSUS DEMOGRAPHICS FOR STS SERVICE AREA, TOTAL AND BY SECTOR

Demographics	Sector 1	Sector 2	Sector 3	Sector 4	Sector 5	Totals
Population:						
1970	52,859	63,138	42,514	34,984	43,571	237,066
1975 ¹	46,399	59,189	45,712	45,345	50,999	247,644
Annual growth (70-75) (%)	-2.6	-1.3	1.5	5.3	3.2	0.9
Percent Breakdown:						
Male	46	47	49	50	49	48
Female	54	53	51	50	51	52
Percent Breakdown:						
White	50.7	68.7	43.7	99.4	94.3	69.4
Black	48.9	31.3	56.2	0.5	5.0	30.3
Other	0.3	0.1	0.1	0.1	0.7	0.3
Family Income:						
Less than \$5,000	36.6	27.3	25.5	6.4	11.2	22.9
\$5,000-\$9,999	33.2	36.7	35.6	17.1	20.6	29.8
\$10,000-\$25,000	26.8	34.9	37.7	67.4	56.4	42.5
Greater than \$25,000	3.4	1.1	1.2	9.0	11.9	4.8
Average (\$)	8,619	8,685	9,102	15,123	15,345	10,930
Median (\$)	6,753	8,123	8,491	13,864	13,138	9,500
Number of Families	12,175	15,980	9,014	8,674	10,006	55,849
Average Family Size	3.5	3.7	4.1	3.9	3.6	3.7
Number of Households	17,811	19,703	10,294	9,314	11,909	69,031
Average Household Size	2.8	3.2	3.8	3.7	3.3	3.3
Age:						
0 - 20	38.0	41.4	49.9	45.9	44.4	43.4
21 - 39	25.8	24.2	28.2	27.3	27.8	26.4
40 - 64	24.6	27.4	18.4	24.1	23.1	23.9
65 +	11.6	7.0	3.6	2.6	4.6	6.3
Median	27.1	26.2	21.1	23.9	24.0	24.3
Educational Grade Level of Adults Over 25 Years:						
0 - 8	33.3	29.6	30.4	6.5	6.8	23.0
9 - 11	17.7	24.9	20.4	11.9	9.2	17.8
12	21.0	29.4	29.0	36.6	24.0	27.5
13 - 15	11.8	9.3	9.0	19.9	21.8	13.7
16 +	16.2	6.8	11.2	25.2	38.1	18.0
Household Automobile Ownership:						
None	24.6	13.2	13.1	1.2	3.2	12.7
One	48.3	47.8	41.2	28.0	37.0	42.4
Two	22.6	32.1	39.3	59.2	49.4	37.4
Three +	4.5	7.0	6.4	11.7	10.5	7.5

¹ CACI, Inc. proprietary program, SITE forecasts based on methodology developed by National Planning Data Corporation, Ithaca, N.Y.

In addition, population estimates for July 1, 1975¹ and corresponding annual growth rates for the period 1970 through 1975 are given.

Since the target population was not precisely known, an estimate has been developed. It can be seen in Table 1 that there were approximately 15,000 persons 65 or older within the STS service area in 1970. Some 3,300 persons (1.5% of the population under 65) have been added to this figure as an estimate of the handicapped population. This yields an estimated target population of 18,300 elderly or handicapped.

Several points should be noted:

- 1) The 1970-75 population growth rates within the service area sectors are consistent with the national trend of population migration from the core city to the suburbs.
- 2) The racial mix among the five sectors varies noticeably, with Sectors 4 and 5 being heavily white.
- 3) The central city area (Sectors 1 and 2) and the northern suburbs (Sector 3) have lower median income levels than do Sectors 4 and 5.
- 4) Sectors 1 and 2, which have higher population densities than the other three sectors, also have proportionately more people in the 65-and-older category.

¹CACI, Inc. proprietary program, SITE forecasts based on methodology developed by National Planning Data Corporation, Ithaca NY.

- 5) Sectors 4 and 5 have approximately 70% more high school graduates than the average of the other three sectors.
- 6) Sectors 1, 2, and 3 have a noticeably larger proportion of households having no automobile.

In general, and not surprisingly, the sectors with a lower socio-economic status have generated the greatest demand for STS.

In addition to these intra-service area statistical comparisons, the data in Table 2 are presented contrasting the service area to summary statistics for the United States, as a whole, in 1970.¹

TABLE 2. COMPARISON OF SUMMARY STATISTICS FOR THE BATON ROUGE SERVICE AREA AND THE UNITED STATES AS A WHOLE IN 1970¹

Characteristic	United States	Service Area
Annual Population Growth Rate, 1970 - 1975 (%)	0.96	0.9
Percentage Breakdown:		
Males	49	48
Females	51	52
Whites	88	69
Blacks	11	30
Other	1	1
Median age in years	28.0	24.3
Percent 65 Years of Age or Older	9.8	6.3
Median Family Income (\$)	9,867	9,500
Percentage Not Completing High School	47.7	40.8
Average Household Size	3.1	3.3
Average Family Size	3.6	3.7

¹Statistical Abstracts of the United States, 1974, U.S. Department of Commerce, Social and Economics Statistics Administration, Bureau of the Census, Washington DC 1974.

Overall, Baton Rouge can be classified as a service area in which:

- 1) The population is proportionately younger, has proportionately fewer people falling into the 65-and-above age category, and has a higher ratio of blacks to whites than the U.S. as a whole.
- 2) The average household size and family size are larger than the U.S. average.

2.2 TRANSPORTATION SUPPLY

To give an indication of the transportation characteristics in Baton Rouge, Table 3 is presented. This table compares the modal split for transportation to work (based upon the 1970 Census) for the United States as a whole, for metropolitan areas with 250,000 population or less, for the East Baton Rouge Parish, and for the City of Baton Rouge.

At the time the demonstration project was instituted, there were a number of transportation modes which were theoretically available to the E/H group. Each of these is briefly discussed below.

2.2.1 The Capitol Transportation Corporation (CTC)

The CTC is a quasi-public corporation with its Board of Directors appointed by the City Council and Mayor-President. The CTC contract management is determined by the Board of Directors and reports directly to the Board.

TABLE 3. COMPARISON OF TRANSPORTATION MODAL SPLIT:
THE UNITED STATES AND BATON ROUGE, 1970^{1,2}

Transportation Mode	United States (%)	Cities Less Than 250,000 (%)	Baton Rouge Parish (%)	City of Baton Rouge (%)
Private auto, driver	68.4	70.4	76.1	74.6
Private auto, passenger	12.2	13.8	10.6	10.7
Bus or streetcar	5.7	1.4	3.0	4.0
Subway, elevated train	2.4	0.0	0.0	0.0
Walked	7.7	9.7	4.8	5.5
Other ³	3.7	4.5	5.3	5.2

¹1970 Census of Population and Housing, Baton Rouge, LA, Standard Metropolitan Statistical Area, U.S. Department of Commerce, Social and Economic Statistics Administration, Bureau of the Census, p.8.

²Statistical Abstract of the United States, 1974.

³Includes railroads and taxis.

The CTC consists of four divisions -- accounting, maintenance, transportation, and the STS. There are 82 employees, of whom 61 are drivers.

At the start of the demonstration project, there were 51 buses; ten of these were inoperative and three were in poor condition. An UMTA Capital Assistance grant, awarded in August of 1975, permitted 30 new buses to be added to the fleet. Following the sale of the older buses, the fleet size as of December 1975 was 69. This bus fleet served 13 routes, extending, in general, from the core city (Sector 1) outward to the suburbs. (See Figure 2.)

The fare structure at the start of the demonstration, and as modified in October 1975, is indicated in Table 4.

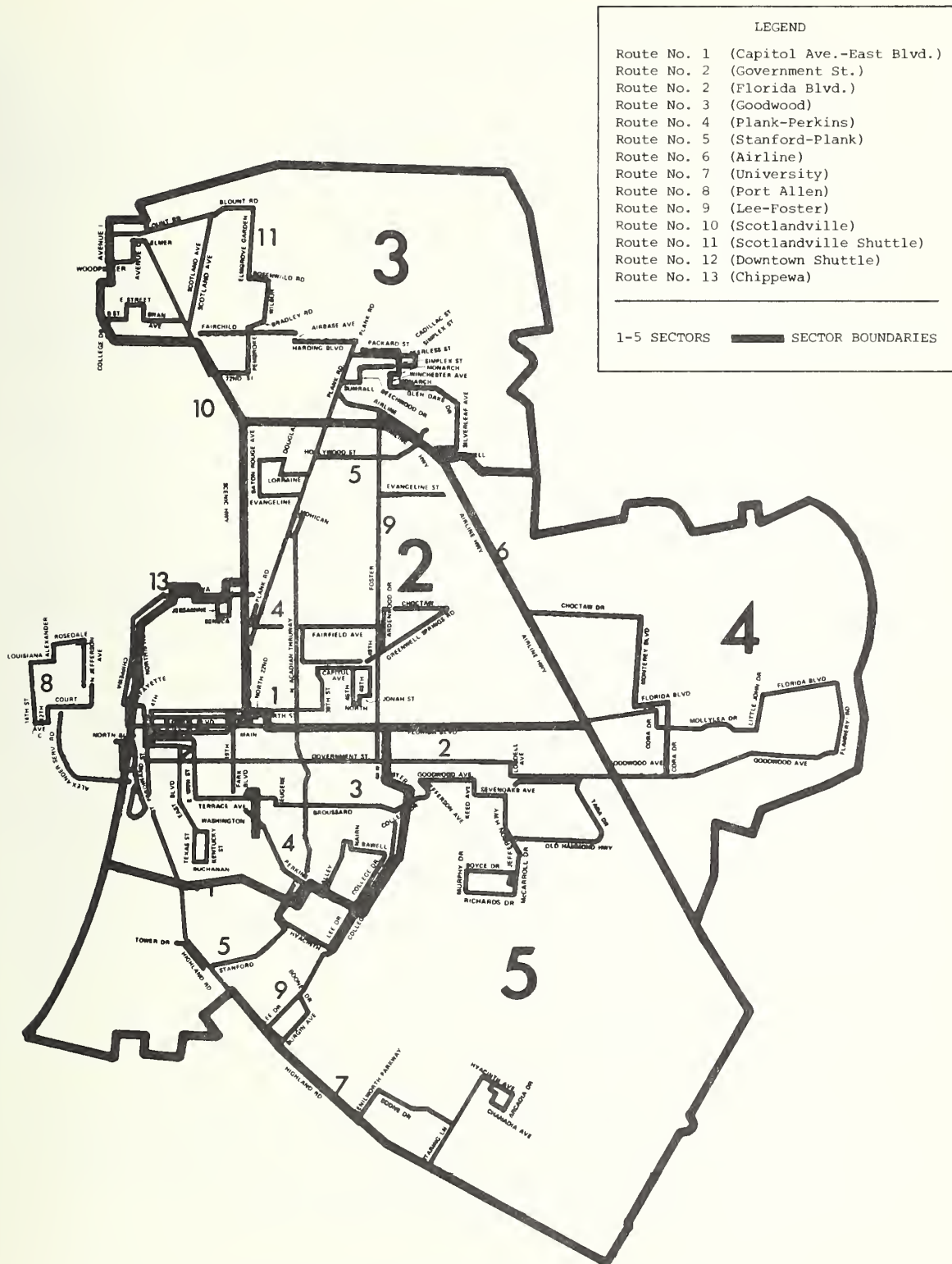


Figure 2. Thirteen CTC Fixed Routes

TABLE 4. FARE STRUCTURE AT START OF DEMONSTRATION
AND IN OCTOBER 1975

Fares	At Start of Demonstration (cents)	In October 1975 (cents)
Base fare	30	40
Transfer charge	5	5
Special extra zone charge	5	-
Students on school trips	15	15
Elderly	0	15

As can be seen in Table 4, at the time of the start of the demonstration, the STS provided free fixed-route service to the elderly. After September 1975, a 15-cent fare was required. Since there was no easy routing to medical destinations and transferring was often necessary, this service did not adequately meet the needs of the elderly and handicapped. Also, access and egress from the buses were particularly difficult for the elderly and handicapped.

Statistics on CTC ridership and monthly operating costs for the period from commencement of the STS through December 1975 appear in Table 5. Ridership figures were compiled from operator's daily trip sheets and were based upon driver counts. The sharp increase in operating costs in September of 1975 was associated with an introduction of new service routes. Those new routes have since been dropped.

2.2.2 Local Taxi Service

There are 26 companies within the City of Baton Rouge and 19 outside the city limits, most of these in the area corresponding to Sector 3 of the STS service area. The 75 city cabs and 21 outside the city can operate anywhere they wish.

TABLE 5. SYSTEM RIDERSHIP AND MONTHLY OPERATING COSTS FOR THE CTC, SEPTEMBER 1974 THROUGH DECEMBER 1975

Month	Ridership	Monthly Operating Costs (dollars)
1974 Sep	202,242	115,472
Oct	222,161	116,637
Nov	192,634	112,557
Dec	204,058	118,369
1975 Jan	275,921	124,563
Feb	325,981	114,573
Mar	320,266	126,298
Apr	351,268	121,817
May	310,662	126,889
June	239,596	118,261
July	261,904	129,775
Aug	229,422	132,170
Sep	385,600	212,127
Oct	395,234	220,430
Nov	353,376	190,362
Dec	141,709 ¹	121,301 ¹

¹CTC drivers' strike in mid-December.

There appear to be three major points which have deterred use of taxi service by the elderly and handicapped:

- 1) The fare structure is such that many of the E/H cannot really afford the service;
- 2) Handling of the wheelchair patient is extremely difficult and time-consuming; and,

- 3) Due to the high potential of personal liability in case any accidents occur, taxi drivers may be reluctant to serve the E/H.

The fare structure, as adopted by the City Council, is:

"One dollar (\$1.00) for the first one-sixth ($1/6$) mile or fraction thereof; ten cents (\$0.10) for each additional one-sixth ($1/6$) mile or fraction thereof; fifteen cents (\$0.15) additional as a surcharge to help defray the increased cost of fuel ... and ten cents (\$0.10) per minute for each minute of waiting time for traffic lights, trains, backed-up traffic, etc..."

To illustrate conversion of these rates to actual trips, assuming no wait time (and, therefore, no wait-time charge), a 5- $1/2$ mile trip from within Sector 1 to the Earl K. Long Hospital in Sector 3 would cost \$4.35. Similarly, within Sector 2, a 3- $2/3$ mile trip to the Baton Rouge General Hospital would cost \$3.05.

2.2.3 Social Service Agencies

At the time of the initiation of the STS, there were five social service agencies which offered sporadic transportation for the elderly and handicapped to satisfy demands for medical trips, shopping, food stamps and nutrition. These were Fish (a volunteer organization), Community Advancement, Inc., Branco-Clark YMCA, North Baton Rouge Health Referral, and Community Association for Welfare of School Children. With the exception of Fish, which used only private autos, the other four services employed both private autos and vans. The frequency of service was extremely random, based upon the availability of the vans and private autos. Services were on an as-needed basis and were not available on any consistent schedule.

2.2.4 Other Transportation Sources

In addition to the above potential sources for transportation, the STS users previously utilized private automobiles for better than 50% of their medically related trips (see the discussion in Chapter 4).

3. DEMONSTRATION PROJECT DESCRIPTION

In this chapter the following aspects of the demonstration project are covered:

- 1) Chronological Overview - summarizing time-phased events associated with the STS.
- 2) Initial System Planning and Implementation - describing demonstration project events leading up to service operations.
- 3) System Operations - describing demonstration project vehicle services and associated STS activities.

3.1 CHRONOLOGICAL OVERVIEW

The following discussion delineates significant events associated with the STS Demonstration Project. Key items are summarized in Figure 3.

In June of 1971, in a survey conducted by the Easter Seal Society, it was determined that the most urgent need in health care for the E/H involved transportation to and from medical facilities. As a consequence, the Society initiated a handicab¹ service (two station wagons) in January of 1972. No formal eligibility requirements were established, although most passengers were handicapped, with medical destinations. A few persons used the service for work trips. A modest fee-for-service of \$1 was charged. For the three months of operation, there was a monthly average of 550 passenger trips, with 73 different clients being served. Although the vans which were ordered were delivered in March, the service ended on March 31, 1972 due to a lack of funds.

¹"HANDICABS -- A Concept." Easter Seal Society for Crippled Children and Adults of Louisiana, Inc., March 17, 1972.

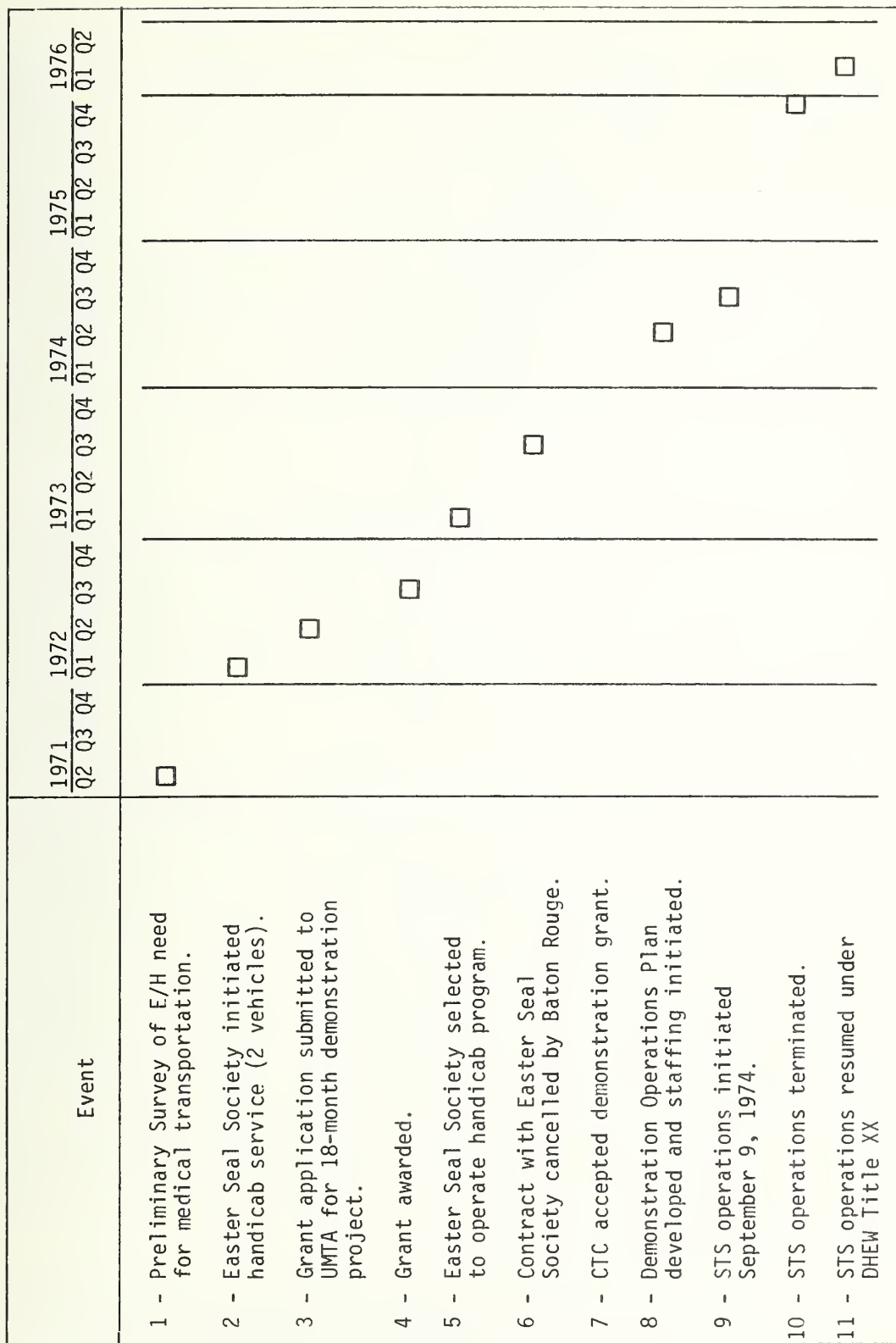


Figure 3. Key Events Associated With the STS Demonstration Project in Baton Rouge

Because of the interest generated by this activity, the City of Baton Rouge applied for funding under an UMTA-sponsored demonstration project. In July of 1972 UMTA awarded an 18-month Service Development grant in the amount of \$171,050, with a local match of \$85,525. The sources for the matching funds were:

- 1) \$40,000 from the State;
- 2) \$20,000 as in-kind from the City-Parish through the Council on Aging and from the CTC in its training of drivers and personnel; and,
- 3) \$25,525 as in-kind from the City-Parish for financial management.

Of the 18-month time period for the grant, six months were to be devoted to planning and acquisition of necessary equipment and twelve months to the actual in-service operations. (Because of available funds, the twelve-month service was extended to almost 15 months, when the CTC was shut down due to a drivers' strike.)

During the balance of calendar 1972, negotiations to establish an acceptable demonstration plan continued. Arrangements were finalized, and the City of Baton Rouge signed an agreement in January of 1973 with the Easter Seal Society to operate the handicab program. During the next few months, vehicle specifications were developed. The Louisiana Easter Seal Society collapsed financially in August 1973 and had to be taken over by the National Easter Seal Society. This collapse necessitated a change in the operator of the program. UMTA accepted the Capitol Transportation Corporation (CTC)¹ as the system operator and administrator. In March of 1974, the CTC Board of Directors passed a resolution accepting the demonstration grant and authorizing initiation of efforts to complete planning and initial project implementation.

¹The local public transportation management organization.

Upon acceptance of the UMTA grant, the CTC, working with other involved local civic and social groups, assigned the responsibility to prepare an STS operations plan to the Capitol Regional Planning Commission (CRPC).¹ The CRPC is a council of governments which does regional planning for an eleven-parish area. The CRPC was also responsible for metropolitan transportation planning for Baton Rouge and to act as the A-95 review agency for federal grant applications. CRPC employees are salaried through funds from the various planning grants. Because of its role as the designated transportation planner for Baton Rouge, CRPC did the STS operations plan and then acted in an advisory capacity during the demonstration.

During preparation of the operations plan, pre-vehicle-operational activities commenced, with emphasis on obtaining equipment, developing screening procedures and application forms, and initiating the public information and education program. On September 9, 1974, the first four STS vehicles were put into operation and the E/H transport segment of the demonstration commenced.

Although the twelve-month term for the vehicle-operations phase expired in August of 1975, STS vehicle service continued until December 1975, when not only STS but all public transportation ceased due to a CTC drivers' strike. The strike was settled in January of 1976, and the STS operations resumed under an HEW Title XX grant. By the summer of 1976, STS patronage had stabilized at between 50 and 60 passengers per day. This decline in patronage has been attributed to more stringent eligibility requirements for the elderly and handicapped, including income constraints which were not in effect during the demonstration. The STS operations continued following the same administrative procedures as were introduced during the demonstration phase.

¹Capital Regional Planning Commission, "Program of Operations for Special Transportation Services. A Transportation Service for the Elderly and Handicapped," July 1974.

3.2 INITIAL SYSTEM PLANNING AND IMPLEMENTATION

The Capitol Region Planning Commission was responsible for developing a demonstration operations plan. In the process of developing this plan, the CRPC sent out questionnaires to all community facilities serving the elderly and handicapped, in an effort to determine transportation needs for the E/H. Categories of need identified through the questionnaire included: socio-economic (i.e., food stamps, welfare, etc.), medical, employment, education, and shopping. The results of the questionnaires supported the earlier findings in 1971, which indicated that transportation for medical purposes was judged to be the most critical need and that the proposed system would be saturated by eligible clients in the medical-care category alone.

The following medical categories were defined for planning and implementation purposes:

- 1) Physician-related medical needs;
- 2) Paramedical needs (nutrition centers, dentists); and,
- 3) Therapeutic needs (e.g., mental health centers).

In anticipation of high demand for client transportation to medical facilities, the STS project was to begin by offering services to clients in the first category only. However, demand for service was lower than anticipated, and service was extended to the paramedical category on October 28, 1974 and to the therapeutic category on November 4, 1974.

Non-medical categories initially included in the operations plan were: socio-economic aid (food stamp; welfare, etc.); employment; education; and shopping.

The CTC, in its role as management for the public transportation system, also served as the vehicle for STS management. The STS became a semi-autonomous division of the CTC, with direct responsibility for system management on a day-to-day basis, but reporting back to CTC management. CTC would offer the following assistance to the STS operation:

- 1) CTC drivers and a vehicle maintenance department available for van servicing (billed to the STS); and,
- 2) Administrative assistance in accounting for system costs and training of drivers and dispatchers (in-kind services).

CTC drivers were given an opportunity to bid for STS slots, with preference being given to the drivers with most seniority. In addition, other CTC drivers were available in the event of absences of regular STS drivers.

Other staff for the project, besides the STS manager and the drivers, were a coordinator/dispatcher (who was responsible for scheduling, dispatching, supervision of drivers, and handling calls from clients requesting service) and an administrative clerk. Other directly involved personnel handling the screening and applications were selected and employed by the East Baton Rouge Parish Council on Aging.

An important aspect of the STS operations plan development was the establishment of client eligibility criteria and screening procedures. The service was to be limited to elderly and handicapped persons¹ with the following characteristics:

- 1) The client would reside within the service area; and,
- 2) The client would meet at least one of these further conditions:

¹Elderly were defined as those individuals 65 years or older, and handicapped were defined according to the UMTA definition: "Any individual who, by reason of injury, age, congenital malfunctions, temporary incapacity, or disability, is unable without special facilities or special planning or design to utilize mass transportation facilities and services as effectively as persons who are not so affected."

- a) The client had no other means of transportation because of geographical isolation and/or economic incapacity;
- b) The client was a patient in a wheelchair who was mobile enough so that he/she required no attendance from the van driver before boarding the van or after leaving the van;
- c) The client could not walk without the use of a walker;
- d) The client would be able to go to treatment facilities unaided but, because of the nature of the treatment received at such facilities, could not make the return trip unaided.

Client screening was performed over the telephone, using the application form shown in Figure 4. (Instructions for filling out this form are given in Appendix A.) The East Baton Rouge Council on Aging donated its time to provide the bulk of the screening and application services for the STS project. After the applications were verified for eligibility, the applications were sent to the STS office to be placed in the master file. The Easter Seal Society also provided this same type of screening service with a part-time employee, paid with funds from the project grant. However, because of the small number of applications received through the Easter Seals office after the initial start of the STS project, the part-time position was deleted on April 1, 1975. Another agency that provided some application service was the East Baton Rouge Parish Division of Family Services.

Client calls for service were accepted only from those persons certified eligible, as indicated in the master file.

CLIENT'S NAME _____	AGE _____
---------------------	-----------

ADDRESS _____

PHONE _____

DISABILITY

<input type="checkbox"/> VISUALLY IMPAIRED	<input type="checkbox"/> DEAF
<input type="checkbox"/> MENTAL RETARDATION	<input type="checkbox"/> CEREBRAL PALSY
<input type="checkbox"/> STROKE	<input type="checkbox"/> OTHER CARDIOVASCULAR
<input type="checkbox"/> USES WHEELCHAIR	<input type="checkbox"/> USES WALKER
<input type="checkbox"/> USES SPECIAL AIDS	OTHER _____

WHAT MEDICAL FACILITIES DO YOU ATTEND?
(Clinics, Hospitals, Doctors Offices, Free Medicine, etc.)

WHICH OF THESE FACILITIES DO YOU ATTEND ON A REGULAR BASIS?
HOW REGULAR? (every day, once a week, once a month, etc.)

DO YOU HAVE TO HAVE A COMPANION IN ORDER TO ATTEND THESE FACILITIES?

TO WHAT OTHER DESTINATIONS BESIDES MEDICAL FACILITIES DO YOU DESIRE
TRANSPORTATION? FOR WHAT REASON? (employment, education, shopping,
food stamps, welfare, social security, etc.)

WHAT AGENCY REFERRED YOU?

Figure 4. STS Client Application

3.3 SYSTEM OPERATIONS

In this section, the actual operations of the STS during the demonstration time frame (September 1974 through August 1975) are described in terms of what happened, problems encountered, and steps taken to correct these problems. Specific sub-sections include discussions on scheduling, equipment, equipment maintenance, communications, marketing, public information and education, and training.

3.3.1 Client Scheduling Procedures

Initially the schedule structure was very rigid, with a certain set of medical facilities to be served on certain days and at specific times. Only three major medical facilities (Earl K. Long Hospital, Our Lady of the Lake Hospital, and Perkins Radiation Center) would be served every day, and the remainder only once a week. Only three and a half hours each day were allotted for random-destination trips, primarily to private doctors' offices. This system of scheduling was dropped shortly after its initiation, because passenger demand called for more random trips, a greater number of hours, and service to medical facilities on a greater number of days.

A pre-scheduled, door-to-door service was then implemented to provide enough flexibility to react to changes in passenger demands as they occurred. This type of scheduling system differed from a real-time demand-responsive system in that a schedule was assembled from passenger requests for service, called in at least 24 hours in advance. This system operated on a first-come, first-served basis and provided necessary flexibility.

Initially, wheelchair clients were assigned according to sectors, like all other clients, since there were three vans with manual rooftop lifts. Vans with these lifts were assigned each day to sectors in which there were wheelchair pick-ups. When the

first motor-operated hydraulic lift was installed on one van in May of 1975, all wheelchair clients were then assigned to that one van.

In the beginning of the project, passengers being transported to random destinations were scheduled for return trips from their destinations two hours after their appointment time. This was quickly found to be unworkable because some clients' appointments took as little as 15 minutes, while others took as much as four or five hours. Consequently, a change was made whereby the client would call the STS dispatcher when finished and request return transportation. The dispatcher would in turn notify the driver who had made the delivery that the client was ready to be returned. The driver would then make the return trip whenever his pick-up schedule permitted. In most cases, this arrangement worked quite well. The average client waiting time for a return trip was about 20 minutes.

Also, it was learned that clients who had late afternoon doctors' appointments were not always ready for a return trip in time for the driver to return to the garage before 5:30 p.m. This resulted in a number of additional overtime hours for the STS drivers. The additional overtime caused an increase in salary expenditures, with relatively few clients served as a result. To counteract this, all clients requesting afternoon service were informed that, unless they were ready to be picked up for a return trip by 4:30 p.m., they would have to make other arrangements for their return, because the STS would not be able to accommodate them. This alteration in scheduling caused the clients either to find another way home or to get the appointment rescheduled for an earlier time. Additionally, the clients were told to let the STS office know if any difficulty in rescheduling occurred, and that the office, in turn, would be glad to call the doctor's office and explain the situation. In practically all cases, the mere mention by the client that he or she was transported by the STS system took care of the situation.

Regarding the drivers' hours, when the scheduling change was instituted and no more requests for return trips were accepted after 4:30 p.m., the drivers were able in many instances to check in by 5:00 p.m. The union contract for the STS drivers called for a ten-and-a-half-hour day; and, even though the driver reported back early, the hours could not be cut back to a ten-hour day.

At any time a service request call was received, the coordinator/dispatcher first checked the master card file containing the names of all the eligible clients. The cards in this file were prepared from information received on the applications. Each card contained the name, address, telephone number, sector in which the client lived, whether the client was confined to a wheelchair, and whether the client needed the assistance of a companion.

If the individual requesting service was represented in the master card file, an appointment was made. The coordinator/dispatcher recorded the necessary information, including the sector number, on his appointment sheet. (Refer to Appendix A for sample appointment sheet.) After checking his schedule board, he informed the client as to pick-up time.

The client was assigned to a van, based upon the sector in which he or she lived and the time he or she needed to travel. If client allocations from one sector were filled, the excess was handled by a van in an adjacent sector, as space permitted.

Those individuals not represented in the master card file were referred to the East Baton Rouge Parish Council on Aging to begin the application process.

Scheduling of requests was aided by the use of a magnetic board, an illustration of which appears as Figure 5. Magnetic symbols were used to indicate ambulatory or wheelchair passengers. Solid strips were used to indicate a full van during a certain hour block. The schedule board was updated after each client's

	7:30	8:30	9:30	10:30	11:30	12:30	1:30	2:30	3:30	4:30
STS 1										
STS 2										
STS 3										
STS 4										
STS 5										

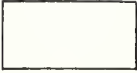
Magnetic Symbols



ambulatory pass.



wheelchair pass.



hour block full.

Figure 5. Schedule Board

request. With the aid of the schedule board, the coordinator/dispatcher could tell at a glance whether or not a client's requested time for service could be handled. The board also served as a check against the next day's schedules, for the drivers to insure that the appropriate number of passengers had been scheduled and that no clients had been overlooked.

3.3.2 Equipment

Equipment required for this demonstration project falls into two major categories: vehicle-related and office. Major capital costs on equipment were:

1)	Six 12-passenger Chevrolet Sports Vans, Series G-30 (See Figure 6.)	\$29,600
2)	Two-way radio system	11,900
3)	Office equipment	2,700
4)	Special steps and lifts	2,500

Items 1 and 4 are discussed in greater detail in this section. Item 2 is similarly discussed in Section 3.3.4 below.

The following modifications were performed on the vans before they were placed in service:

- 1) Addition of a slide-out entry door step under the sliding door, to ease entry and exit (see Figure 7).
- 2) Installation of the first type of wheelchair lift used in the STS program, mounted on the top of the van and manually operated through the use of an hydraulic cylinder (see Figure 7).
- 3) Installation of the first type of tie-down device for wheelchairs.



Figure 6. STS Chevrolet Sports Van



Figure 7. STS Vehicle Showing the Car-Top Lift, Stanchion, and Footstep

As a result of these modifications, the six-van STS fleet had the passenger capacities given in Table 6.

TABLE 6. PASSENGER CAPACITIES FOR THE SIX-VAN FLEET

Van	Ambulatory Passengers	Wheelchair Passengers
1	4	3
2	7	2
3 - 6	11	-

For the first eight months, the system operated four vans on a ten-hour day, five-day-a-week schedule. In May of 1975, a fifth van was introduced into full operation, with the sixth van being held in reserve or replacing an operational van going through maintenance.

It became apparent during operation that the type of van used for this project was not particularly well-suited to elderly and handicapped clients, due primarily to design considerations. The roof was too low for easy entry and exit from the vans, and modifications to raise the roof would have been costly; estimates ranged between \$600 and \$1,000. Engine maintenance was difficult because of restricted room, thereby increasing maintenance time and cost. The number of seating arrangements possible was severely restricted, due to cost of modifications. In general, this type of van was not designed for the use that it received in the STS project.

Equipment that was used for loading and unloading wheelchair clients presented the most problems. Very little information was available, necessitating trial-and-error experimentation.

First, two types of wheelchair ramps were considered, one interior-mounted and the other exterior-mounted. Both were found to have serious design and/or safety drawbacks.

Two types of hydraulic wheelchair lifts, manual and motor-operated, were then considered. Lift devices had formerly been rejected, due to high cost, but careful investigation finally identified a lift that was available for less than \$500, a relatively moderate cost. Initially, three car-top-mounted manual lifts were purchased for in-service testing; their operation proved to be cumbersome and time-consuming.

By the time a second type of lift was purchased, the STS had enough experience to know that wheelchair client demand could be satisfied by one van. Because this new, motor-operated hydraulic lift was installed, interior seating was rearranged to accommodate three, instead of two, wheelchairs. While the motor-operated hydraulic lift proved far more satisfactory than the manual device, it also had its drawbacks. Due chiefly to reliability problems and the need for a backup vehicle for wheelchair clients, another motor-operated hydraulic lift was acquired and installed on a second van. It accepted larger wheelchairs and appeared to be sturdy, but had not been in operation for a long enough period of time at the end of the project to permit a meaningful performance assessment.

Two general types of wheelchair tie-down devices were tested; and a satisfactory device, developed by the STS project director with the aid of the CTC maintenance superintendent, was put into operation.

Vehicle improvements and modifications made after the vans were placed into service included:

- 1) The purchase and installation of a wheelchair platform lift, operated by an hydraulic motor and pump.

- 2) The purchase and installation of a second wheelchair platform lift. This lift had a greater weight capacity than the previous one and was raised by the use of two hydraulic cylinders, as opposed to the single hydraulic cylinder of the first.
- 3) The development and installation of a second tie-down device for wheelchairs.
- 4) The installation of a removable stanchion placed in the doorwell of the sliding door to assist ambulatory passengers in retaining their balance.
- 5) The reversal of the bench seat behind the driver in the vans without car-top lifts to ease passenger entry and exit.
- 6) The installation of a two-way radio in each van.
- 7) Painting the slide-out entry door step a bright orange so as to aid passengers in seeing the step.

3.3.3 Equipment Maintenance

Scheduling the vans for maintenance was difficult, due to the availability of the vans in relation to the maintenance department time schedule. This difficulty was resolved when one van could be held for maintenance on any given day without adversely affecting the operation of the system. For example, the van described as having a capacity of two wheelchairs and seven ambulatory passengers could be converted in 15 minutes to handle three wheelchairs by removing one bench seat and installing the necessary wheelchair tie-down devices.

The only other difficulty encountered with maintenance scheduling was the washing and cleaning of the vans. Originally,

the washing and cleaning was done by a local car wash. However, once the radio antenna and car-top lifts were installed, the vans could not fit through the wash rack. The CTC maintenance department then assumed this responsibility. The first arrangement was to wash and clean one van a day. This was not operationally practical, so the final arrangement was to wash and clean all the vans on the weekend.

3.3.4 Communications

Operational difficulties were also encountered in the areas of telephone and radio communications.

The STS began with two telephone numbers installed as single-line phones with no "hold" capability. This arrangement proved to be impractical, and the office telephone system was changed to multi-line phones with "hold" capabilities.

The two-way radio system encountered some difficulties. The equipment worked fine when it was installed. Subsequent problems included: delays in obtaining FCC approval to utilize assigned frequency, a local explosion and fire in the City-Parish radio shop, and incorrect base-station antenna mounting brackets. These problems delayed initiation of the two-way system by two and one half months. During this initial period, the drivers and dispatchers communicated via telephone.

3.3.5 Marketing, Public Information, and Education

Initially, to create an awareness on the part of the public, there was some television, radio, and newspaper publicity. This campaign did not appear to be effective, since many potential clients remained unaware of the STS. This factor, coupled with errors in the initial estimates of system demand, necessitated modifications in the marketing program.

The STS project office, therefore, embarked on a more intensified marketing program which included the following:

- 1) Distribution of flyers and posters to all medical facilities, service agencies, and nursing homes.
- 2) Informational contacts with local medical and dental societies.
- 3) Additional television and radio public service announcements.
- 4) Personal visits to all medical facilities, service agencies, and nursing homes for the purpose of explaining the service first-hand.

Although the STS experienced no problems in obtaining cooperation from social service agencies, it did experience some difficulty with agencies when the system did not meet particular needs at a certain time. As the system gained recognition and its purpose became better known, the attitude toward the STS began to change, and greater cooperation was noted in obtaining client referrals.

3.3.6 Training

Training requirements for STS operational personnel were minimal. The STS operations team consisted of:

- 1) Project director
- 2) Coordinator/dispatcher
- 3) Administrative clerk
- 4) Five drivers
- 5) Applications and screening personnel

In each instance, the individuals had to be familiar with the Baton Rouge service area and aware of the special problems in handling the elderly and handicapped. All personnel, with the exception of replacement drivers, received on-the-job training. For replacement drivers, a short course in customer relations was developed and included: how to get along with people, general characteristics of the elderly and handicapped, a description of the STS program and its operation, unusual pick-up and delivery points, and a description of and training session on the equipment used in the STS system.

At the beginning of the program an STS application instruction sheet was developed and given to individuals who would be handling application requests (see Appendix A). Upon initial receipt of the instruction sheet, the individuals involved in the application process had an opportunity to ask related questions.

4. STS CLIENT, TRIP, AND COST INFORMATION

In this chapter, descriptive statistics on STS clients, trips, and costs are presented. Observations and analyses, where supported by the data, will be set forth. Due to the limitations of some of the data (less than the twelve-month demonstration period and small on-board survey sample sizes), generalizations beyond the service area may not be appropriate.

Data which have provided a basis for the analyses and observations which follow were obtained from:

- 1) Application forms (see Figure 4) obtained from each prospective client.
- 2) Daily trip logs for each vehicle driver (see Appendix A, Figure A-5).
- 3) On-board interviews conducted during February 3-6, 1975 and November 5-6, 1975 by Southern University Transportation Center staff (see Appendix C for copies of the survey instruments and a description of how the surveys were conducted).
- 4) Other available sources related to the STS service, including planning and accounting documents, and personal observations. Although information on the number of different clients served monthly by the system is available in the STS driver's schedule and on the coordinator/dispatcher appointment sheet (see Appendix A, Figures A-3 and A-4, respectively), the data were tabulated only for the first seven months of the project.

- 5) Cost and other operational data supplied through the STS administrative offices.

Specific data sources are referenced on each figure or table.

4.1 CLIENT-RELATED INFORMATION

To assess the impact of any specialized service such as the STS, client-related information is essential. Information contained in this section will shed light on client and user characteristics and will be useful as analyses are made and conclusions developed. A client is an individual who has been screened and listed in the master file of eligibles. A user is a client who takes advantage of the STS. A passenger is either a client or a companion rider.

The data presented in this section will be useful in answering such questions as:

- 1) Where do the STS clients reside and how do selected client demographics compare to the service area as a whole?
- 2) What was their prior mode of transportation and their use of the CTC?
- 3) How were the clients referred to the STS?
- 4) What disabilities seem most prevalent in the client group and what proportion need travel companions?

Information on client residence sector is presented in Table 7. This information came from application forms and includes all qualified applicants through August of 1975. For comparison, the percentage of the service area population 65 or older within each sector is also given. (It is recognized that

TABLE 7. RESIDENCE SECTORS, AGE, RACE, AND
SEX DISTRIBUTIONS FOR STS CLIENTS

Residence Sector of Client	Percent ¹ of Total Clients	Percent of Total Population 65 or Older ²	
Sector 1	42.0	41.0	
Sector 2	33.3	29.4	
Sector 3	15.2	10.2	
Sector 4	5.1	6.1	
Sector 5	3.9	13.3	
Undetermined	.5	-	
	100.0	100.0	

Age Distribution ¹	Percent of STS Clients	Age Distribution ²	Percent of Total Service Area
Under 11	1.3	0 - 20	43.4
11 - 20	1.9	21 - 39	26.4
21 - 30	3.7	40 - 64	23.9
31 - 40	2.9	65 and over	6.3
41 - 50	5.5		
51 - 60	11.1		
61 - 70	27.2		
71 and older	46.2		
Median age	69.1 yrs.	Median age	24.3 yrs.

Racial Distribution ³	Percent of Survey Respondents	Percent of Total Service Area
Black	62.7	30.3
White	37.0	69.4
Other	.3	.3

Sex Distribution ²	Percent of Survey Respondents	Percent of Total Service Area
Male	35.8	48
Female	64.2	52

¹Source: STS operational records updated from the Transportation Center, Southern University, Baton Rouge, Louisiana, "The Special Transportation Services Project..." report, p. 10.

²See Table 1.

³Combined on-board STS survey results, Transportation Center, Southern University, Baton Rouge, Louisiana; February 3-6, 1975 (157 respondents); November 5-6, 1975 (111 respondents).

inclusion of the handicapped population less than 65 might alter these figures slightly.)

Data on age, race, and sex distributions also appear in Table 7 and are related to comparable service area statistics. Considering the data in Tables 7 and 1, the following points can be noted:

- 1) Clients tend to come from sectors with lower median income, higher proportion of persons 65 and older, lower educational levels, greater proportion of households owning no automobile, and higher ratio of black to white.
- 2) Overall, it can be stated that the female-to-male ratio was higher for the STS clients than for the population of the total service area.
- 3) The predominantly white suburban sectors (4 and 5) generated only 9% of the clients, yet represented 19.4% of the eligible persons 65 and older.

Based upon responses of 157 clients during the first on-board survey, conducted February 3-6, 1975, the prior modes of travel were as shown below:

<u>STS Survey Respondents' Prior Mode of Travel</u>	<u>Percent of Respondents</u>
Private auto, driver	5.7
Private auto, passenger	45.2
Bus	20.4
Paid someone	10.2
Taxi	2.5
Social service agencies	2.5
Walked	2.5

Ambulance	1.3
Miscellaneous	2.5
Did not make trip before	4.5
No response/question not asked	2.5

Approximately 50% used private automobile previously for similar trips, while less than 5% did not make the same trip before. This means that few new trips were generated by the project. Data are not available to determine whether the project enabled existing trips to be made more often.

Utilizing data from the two surveys, conducted during February 1975 (157 clients) and November 1975 (111 clients), information on user willingness and capability to ride the regular transit system follows. (Because questions were worded differently on the two surveys, some license has been taken in paraphrasing the initial questions.)

<u>STS User Responses Relative to Willingness and Capability to Ride the Regular Transit System</u>		<u>Percent of Respondents</u>
If a bus were conveniently available for this trip, would you use it?	Yes	31.3
	No	<u>68.7</u>
		100.0

Reasons for not using bus:

Disability factor	59.8
STS satisfactory	16.8
Financially unable	13.1
Dislike riding buses	3.8
Other	<u>6.5</u>
	100.0

It is evident that a high proportion could not conveniently or would not willingly use the bus.

Not surprisingly (see Table 8), approximately two-thirds of the STS clients were referred through the Council of Aging, and better than 75% through social service agencies. Only 2.5% were referred by news media.

Most common client disabilities are presented in Table 9. Almost one-quarter require wheelchair, special aids, or walkers. Of these, more than half use wheelchairs.

With respect to medical destinations mentioned by STS clients (again, for the first seven months of the project), 28% were for the Earl K. Long Hospital. The next two desired destinations were the Baton Rouge Mental Health Center and the Baton Rouge Clinic, with 5.9% and 4.8%, respectively. For this same client group, the two most frequently desired non-medical destinations were for shopping (9.1%) and food stamps, welfare and social security (6.1%).

4.2 TRIP-RELATED INFORMATION

In this section, information relative to trip purposes, destinations, and the impact of disabilities on trips is presented. In addition, summary client trip and vehicle operating statistics are given.

Based upon information contained in the two on-board surveys, as reported by the clients, 87% of the trips were medically related and 13% were to nutrition centers. Statistics from the STS operational records by actual trip destination are presented for the twelve-month demonstration period in Table 10. These data indicate a greater proportion of nutrition-related trips than reported during the two on-board surveys.

TABLE 8. METHOD OF REFERRAL OF STS CLIENTS¹

Agency	Number	Percent of Total Applicants
Capital Area Council on Aging	1,348	68.5
STS/CTC/Easter Seals	157	8.0
Division of Family Services/ Social Security	79	4.0
Nursing Home Where Applicant Lives	75	3.8
Community Advancement	50	2.5
News Media	48	2.5
Neighbor, Friend, Relative	39	2.0
All Others	39	2.0
Medical Facility	38	1.9
No Response	<u>95</u>	<u>4.8</u>
	1,968	100.0

¹Source: STS operational records updated from the Transportation Center, Southern University, Baton Rouge, Louisiana, "The Special Transportation Services Project. . ." report, p. 14.

TABLE 9. MOST COMMON DISABILITIES OF STS CLIENTS¹

Disability ²	Number	Percent of Total Applicants
Wheelchair/Special Aids/Walker Use	473	24.0
Wheelchair	265	13.5
Old Age/Senility	392	19.9
Visual Impairment	327	16.6
Other Cardiovascular Disability	254	12.9
Arthritis	192	9.9
Hypertension	183	9.2
Stroke	146	7.4
Diabetes	143	7.3
Mental Retardation	118	6.0
Broken Limbs, Fractures, Injuries as Result of Accidents	69	3.5
Nervousness	65	3.3
Cancer	56	2.8
Limb Amputation	43	2.2
Deafness	36	1.8
Kidney Disorders	26	1.3
Asthma	24	1.2
Cerebral Palsy	19	1.0
	<u>3</u>	<u>3</u>

¹Source: STS operational records updated from the Transportation Center, Southern University, Baton Rouge, Louisiana, "The Special Transportation Services Project . . ." report, p. 11.

²Not all reported disabilities listed - only those reported by at least 1% of applicants.

³Due to multiplicity of responses, percentages and numbers should not be added.

TABLE 10. NUMBER OF TRIPS TAKEN BY STS CLIENTS, BY TRIP PURPOSE, SEPTEMBER 1974-AUGUST 1975¹

Months	All Client Trips	Number of		Initial Pick-Up Trip Purposes												Nutrition Centers		Non-Medical	
		Return to Residence Trips	Initial Pick-Up Trips	Baton Rouge Physical Therapy		Perkins Radiation Center		Speech & Hearing Clinic		General Medical ²		Mental Health & Retardation							
				No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
September	239	109		130		1	.8	25	19.2	-	-	85	65.4	18	13.8	-	-	1	.8
October ³	855	408		447		14	3.1	61	13.7	1	.2	312	69.8	13	2.9	45	10.1	1	.2
November	1,899	916		983		5	.5	47	4.8	6	.6	341	34.7	178	18.1	406	41.3	-	-
December	2,066	989		1,077		2	.2	80	7.4	11	1.0	417	38.7	251	23.3	316	29.4	-	-
January	2,739	1,319		1,420		1	.1	52	3.6	12	.8	581	40.9	380	26.8	390	27.5	4	.3
February	2,738	1,311		1,427		-	-	53	3.7	16	1.1	601	42.1	421	29.5	317	22.2	19	1.3
March	2,984	1,400		1,584		-	-	37	2.4	24	1.5	678	42.8	358	22.6	455	28.7	32	2.0
April	3,383	1,392		1,991		-	-	18	.9	30	1.5	1,299	65.2	109	5.5	511	25.7	24	1.2
May	3,432	1,636		1,796		-	-	23	1.3	21	1.2	1,234	68.7	123	6.9	376	20.9	19	1.0
June	3,277	1,248		2,029		-	-	73	3.6	8	.4	1,437	70.8	82	4.1	411	20.2	18	.9
July	3,120	1,387		1,733		-	-	69	4.0	14	.8	1,066	61.5	101	5.8	464	26.8	19	1.1
August	3,021	1,298		1,723		-	-	34	2.0	1	.1	1,118	64.9	138	8.0	426	24.7	6	.3
12-Month Period	29,753	13,413		16,340		23	.2	572	3.5	144	.9	9,169	56.1	2,172	13.3	4,117	25.1	143	.9

¹ Source: Transportation Center, Southern University, Baton Rouge, Louisiana; "The Special Transportation Services Project. . .", p 20. (In early months slight differences between Southern University's data and STS operational records have been normalized.)

² Includes trips to hospitals, medical doctors.

³ Nutrition centers added to eligible destinations in late October.

Because of the potential impact of wheelchair clients on overall level of service provided by the STS, statistics on numbers of wheelchair client and companion trips during the twelve-month project period are given in Table 11. During the last four months of the project, the proportion of wheelchair client trips stabilized at around 13%. About one-third of the wheelchair trips require at least one companion. The 13% wheelchair usage compares with 0-3% in other known E/H services.

A summary of STS trip statistics appears in Table 12. Data on numbers of different clients served monthly are tabulated only for the first seven months of the service, and indicate an increasing trend. Approximately 35% of the registered clients were actually using the services during March of 1975, averaging 6.8 trips per month. After examining the origin and destination records from the first seven months and making certain simplifying assumptions, the average direct trip length was found to be 3.6 miles.

A summary of STS vehicle operating statistics is given in Table 13 for the twelve-month period. Data are presented by vehicle mile and vehicle hour. Selected client trip and vehicle operating statistical time series for the twelve-month period are summarized graphically in Figure 8.

From the data presented in Tables 11, 12, and 13, and comments from the STS project manager, certain observations can be made:

- 1) Relative to other similar E/H special transportation services, this system provides a relatively high proportion of wheelchair trips (10.8% on the average for the twelve-month period, and 13% on the average during the final four months of service). One van was specially equipped to handle wheelchair

TABLE 11. STS CLIENT TRIPS INVOLVING WHEELCHAIR PATIENTS AND COMPANION RIDERS,
BY MONTH, SEPTEMBER 1974 - AUGUST 1975¹

Month	Client Trips	Trips with Wheelchair Clients		Total Wheelchair Trips with ² Companions	% of Wheelchair Trips with Companions
		No.	% of Total Client Trips		
September	239	23	9.6	10	43.5
October ³	855	109	12.7	44	40.4
November	1,899	80	4.2	23	28.8
December	2,066	175	8.5	32	18.3
January	2,739	258	9.4	31	12.0
February	2,738	277	10.1	75	27.1
March	2,984	282	9.5	98	34.8
April	3,383	341	10.1	130	38.1
May	3,432	448	13.1	156	34.8
June	3,277	411	12.5	185	45.0
July	3,120	420	13.5	162	38.6
August	3,021	397	13.1	178	44.8
Total	29,753	3,221	10.8	1,124	34.9

¹Source: STS operational records.

²Of the 1,124 trips in which a companion accompanied the wheelchair client, in nine instances there were two companions and in ten instances there were three companions.

³Nutrition centers added to list of eligible destinations in late October.

TABLE 12. STS SUMMARY TRIP STATISTICS,
SEPTEMBER 1974 - NOVEMBER 1975

Month	Number of Operation Days	No. of Client Trips	Total Passenger Trips	No. of Different Clients Served Monthly	Trips/ Client/ Month	Average Number of	
						Daily Client Trips	Daily Passenger Trips
September	16	239	267	79	3.0	15	17
October ¹	23	855	950	199	4.3	37	41
November ¹	20	1,899	2,001	279	6.8	95	100
December	21	2,066	2,227	314	6.6	98	106
January	22	2,739	3,060	372	7.4	125	139
February	20	2,738	3,063	422	6.5	137	153
March	20	2,984	3,336	436 ²	6.8	149	167
April	22	3,383	3,755	- 3	- 3	154	171
May	22	3,432	3,787	- 3	- 3	156	172
June	21	3,277	3,714	- 3	- 3	156	177
July	22	3,120	3,567	- 3	- 3	142	162
August	21	3,021	3,430	- 3	- 3	144	163
12-Month Period	250	29,753	33,157	- 3	- 3	119	132
September	21	- 3	4,211	- 3	- 3	- 3	201
October	23	- 3	4,521	- 3	- 3	- 3	197
November	18	- 3	3,183	- 3	- 3	- 3	177
15-Month Period	312	- 3	45,072	- 3	- 3	- 3	144

¹Paramedical destinations added in late October, therapeutic in early November.

²Of 1,237 registered at that time.

³Data available in STS records, but not tabulated.

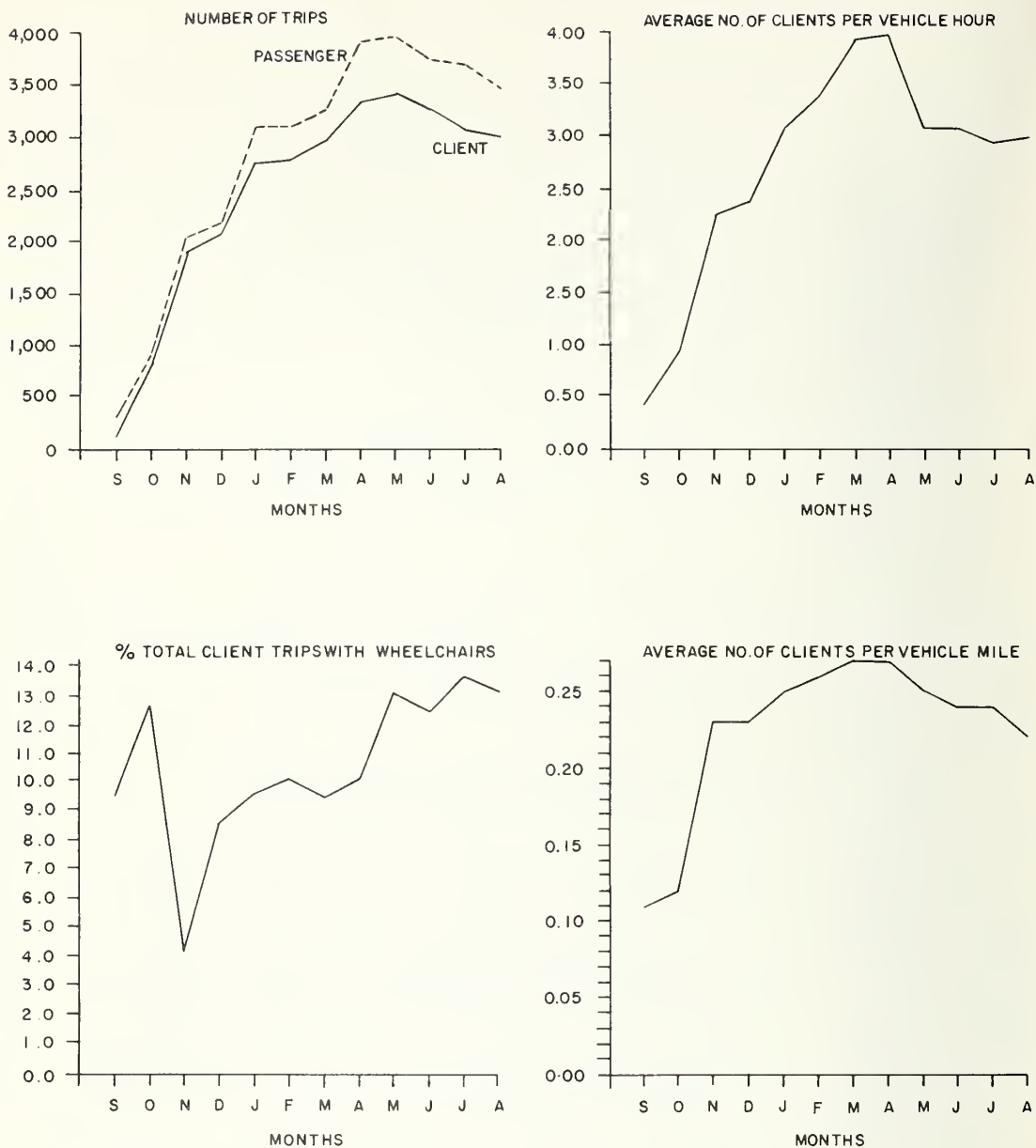
TABLE 13. STS SUMMARY VEHICLE OPERATING STATISTICS,
SEPTEMBER 1974 - AUGUST 1975

Month	Average Number of			Average Number of Daily Client Trips	Average Number of		
	Vehicle Miles Per Day	Vehicle Miles Per Vehicle Per Day	Estimated Vehicle Hours Per Day		Clients Per Vehicle Mile	Clients Per Vehicle Hour	Client Miles Per Vehicle Hour ¹
September	131	33	40	15	.11	.38	1.4
October ²	299	75	40	37	.12	.93	3.3
November ²	405	101	40	95	.23	2.38	8.6
December	432	108	40	98	.23	2.45	8.8
January	494	123	40	125	.25	3.12	11.3
February	531	133	40	137	.26	3.42	12.3
March	545	136	40	149	.27	3.72	13.4
April	571	143	40	154	.27	3.85	13.9
May ³	632	127	50	156	.25	3.12	11.2
June	661	132	50	156	.24	3.12	11.2
July	601	120	50	142	.24	2.84	10.2
August	644	129	50	144	.22	2.88	10.4

¹Assumes 3.6 miles as average trip length.

²Paramedical destinations added in late October, therapeutic in early November.

³A fifth operational vehicle was introduced.



DATA FROM TABLES 11, 12, & 13.

Figure 8. Selected Trip and Vehicle Operating Statistical Time Series, September 1974 - August 1975

clients over all sectors (with another van similarly equipped for back-up). This van contributed to higher average vehicle miles per day and a low average number of clients per vehicle mile and per vehicle hour.

- 2) The expansion of allowable destination facilities in late October and early November provided an improved vehicle utilization in that the average number of clients per vehicle hour increased sharply and then continued an upward trend for the following six months. The introduction of a fifth vehicle without a further increase in overall ridership resulted in a reversal of this favorable trend. A seasonal shift in STS passenger loads was not anticipated. During the summer months, a number of STS patrons stopped utilizing the services for various reasons (better weather, relatives and friends were more available to provide transportation, or because they were away on trips visiting friends and relatives out of the area). Passenger trips increased again during the early fall. Holidays such as Thanksgiving and Christmas had a similar effect on ridership.
- 3) Due to the nature of the service and client demand (time of day and location), there were regularly periods of time during which vans in service traveled with two or less passengers, another factor which tends to lower the productivity measures. The service was under-utilized primarily during the off-peak periods, from approximately 10:30 a.m. until afternoon pick-ups for

return to client residences. Specialized services during this period were under consideration (such as trips for non-medical reasons). Such services could improve productivity.

- 4) The rather large service area (88 square miles) and the resultant fairly long trip lengths (3.6 miles average) tended to produce lower productivity.

4.3 COST-RELATED INFORMATION

Monthly operating costs and capital depreciation for the twelve months of the demonstration project appear in Table 14. Depreciation has been based upon a straight-line method with the following conditions:

- 1) Vans and special equipment - 3 years, with a residual value of 10%.
- 2) Two-way radios - 10 years, with no residual value.
- 3) Office equipment - 5 years, with no residual value.

Major capital costs, as indicated in Chapter 3, amounted to \$46,700.

In analyzing the data in Table 14, it is important to recognize that there were other system operating costs which are not reflected in these monthly costs. In the case of the STS, some of these recurring costs that are not included in Table 14 were:

- 1) Bookkeeping through both the CTC and the City-Parish;
- 2) Training of personnel through CTC; and,
- 3) Garaging of vehicles at the CTC.

TABLE 14. STS MONTHLY OPERATING COSTS AND CAPITAL DEPRECIATION,
SEPTEMBER 1974 - AUGUST 1975¹

ITEMS	September	October	November	December	January
I. Operating Costs:					
1. Maintenance, Servicing & Repair of Vans	\$ 409 ²	57	0	40	115
2. Fuel, Oil, Washing for Vans	250	452	617	717	791
3. Administrative Costs:					
a. Office Supplies	11	6	35	1	21
b. Postage	-	-	40	16	-
c. Telephone	136	61	62	73	61
d. Printing & Binding	10	145	19	33	-
e. Development of Media Materials	-	-	4	3	10
f. Radio Loop	-	-	41	8	8
4. Salaries & Benefits:					
a. Driver Salaries	3,294	3,979	3,587	4,827	4,353
b. Staff Salaries	2,575	2,575	2,575	2,575	2,686
c. Driver Benefits	445	479	345	529	495
d. Staff Benefits	249	251	251	251	261
5. Vehicle Insurance:	497	497	497	562	562
6. Office Rental:	186	186	186	186	186
Total Operating Costs:	8,062	8,688	8,259	9,821	9,549
II. Capital Depreciation Costs:					
1. Vans & Special Equipment	784	784	784	784	784
2. Two-Way Radio System	99	99	99	99	99
3. Office Equipment	45	45	45	45	45
Total Capital Depreciation	928	928	928	928	928
GRAND TOTAL	\$8,990	9,616	9,187	10,749	10,477

¹Source: STS operational records.

²Figures rounded to nearest dollar.

TABLE 14. STS MONTHLY OPERATING COSTS AND CAPITAL DEPRECIATION (CONTINUED)

ITEMS	February	March	April	May	June	July	August
I. Operating Costs:							
1. Maintenance, Servicing & Repair of Vans	\$ 21	30	629	328	90	160	78
2. Fuel, Oil, Washing for Vans	748	800	857	1,021	1,055	1,027	1,101
3. Administrative Costs:							
a. Office Supplies	85	2	18	41	-	47	24
b. Postage	66	-	24	-	24	-	24
c. Telephone	76	79	83	78	70	78	71
d. Printing & Binding	14	-	19	19	32	19	15
e. Development of Media Materials	2	-	-	-	-	-	-
f. Radio Loop	8	8	8	8	8	8	8
4. Salaries & Benefits:							
a. Driver Salaries	3,986	4,354	4,305	5,564	5,426	5,803	5,200
b. Staff Salaries	2,686	2,686	2,436	2,436	2,436	2,436	2,481
c. Driver Benefits	455	489	492	515	611	662	530
d. Staff Benefits	261	261	261	261	261	261	261
5. Vehicle Insurance:	562	562	562	562	562	562	562
6. Office Rental:	186	186	186	186	186	186	186
Total Operating Costs:	9,156	9,457	9,880	11,019	10,761	11,249	10,541
II. Capital Depreciation Costs:							
1. Vans & Special Equipment	784	785	814	814	814	814	814
2. Two-Way Radio System	99	99	99	99	99	99	99
3. Office Equipment	45	45	45	45	45	45	45
Total Capital Depreciation	928	929	958	958	958	958	958
GRAND TOTAL	10,084	10,386	10,838	11,977	11,791	12,207	11,499

Monthly operating costs, as set forth in Table 14, are related to vehicles, clients, and days of operation for the twelve-month demonstration period, in Table 15. Some selected cost-related statistical time series, based upon data in Tables 14 and 15, appear in Figure 9.

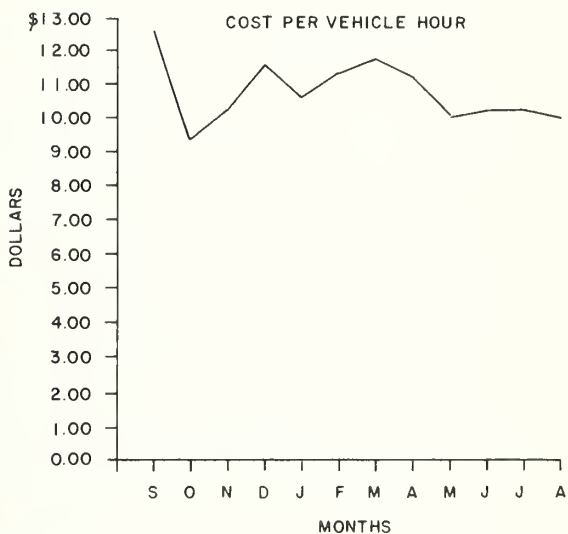
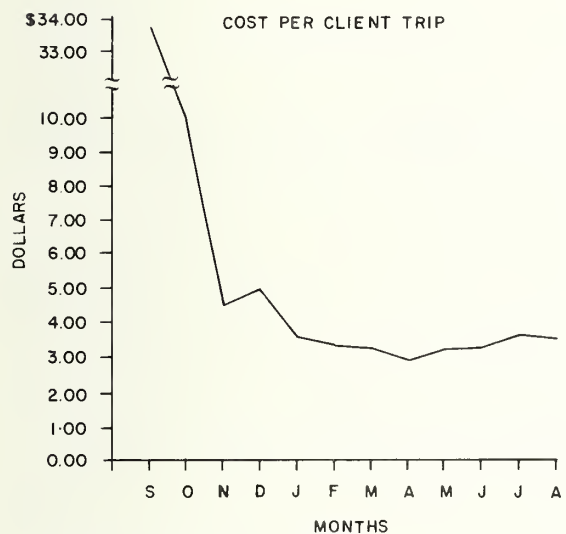
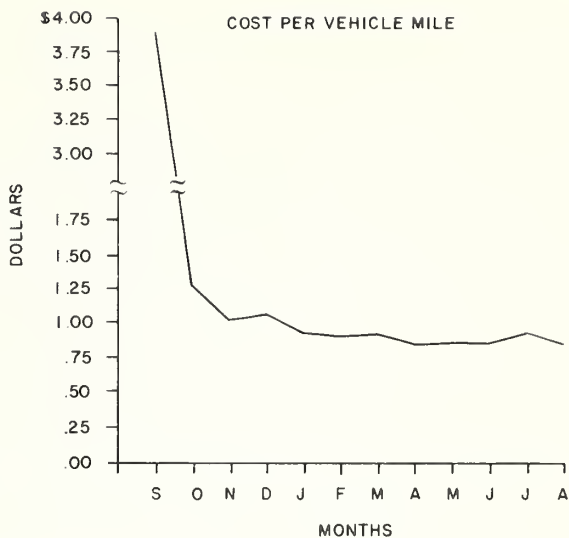
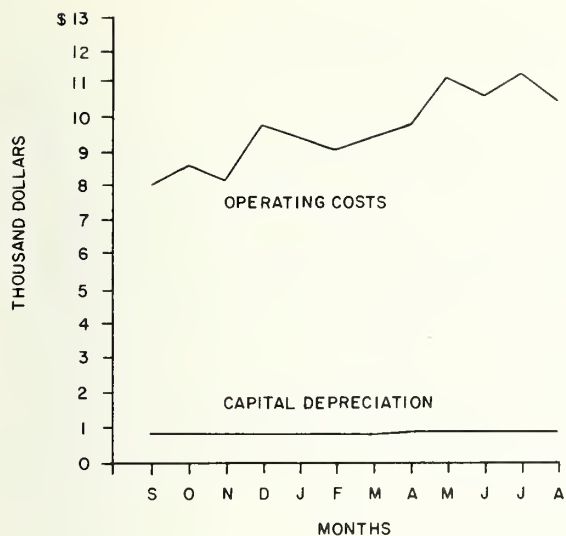
Certain observations can be made:

- 1) New allowable medical destinations were introduced in late October and early November. This expansion in service added passengers to an underutilized system for the next eight months, leading to a drop in cost per vehicle mile and cost per passenger and client trip over that period. The decline continued until a fifth vehicle was added to the operational fleet, when costs rose for the final four months of the demonstration.
- 2) The high usage of STS by wheelchair clients (13% of all trips) tended to increase the operating costs per passenger. Wheelchair usage in other E/H services has typically been 3% or less.
- 3) Fairly low costs per vehicle hour tended to decrease the operating costs per passenger. This was due primarily to the relatively low level of driver salaries and associated fringe benefits, and to the infrequent maintenance requirements for the vans provided by this service.

TABLE 15. STS MONTHLY OPERATING COSTS, RELATED TO VEHICLES, CLIENTS, AND DAYS, SEPTEMBER 1974 - AUGUST 1975

Month	Monthly Operating Costs	Costs Per					Operating Vehicle ¹ Per Day
		Vehicle Mile	Vehicle Hour	Client Trip	Passenger Trip	Day of Operation	
September	\$ 8,062	\$3.84	\$12.60	\$33.73	\$30.19	\$504	\$126
October	8,688	1.26	9.44	10.16	9.15	378	94
November	8,259	1.02	10.32	4.35	4.13	413	103
December	9,821	1.08	11.69	4.75	4.41	468	117
January	9,549	.88	10.85	3.49	3.12	434	109
February	9,156	.86	11.44	3.34	2.99	458	114
March	9,457	.87	11.82	3.17	2.83	473	118
April	9,880	.79	11.23	2.92	2.63	449	112
May	11,019	.79	10.02	3.21	2.91	501	100
June	10,761	.77	10.25	3.28	2.90	512	102
July	11,249	.85	10.23	3.61	3.15	511	102
August	10,541	.78	10.04	3.49	3.07	502	100

¹Four operating vehicles (two in reserve); a fifth operating vehicle and one in reserve in May of 1975.



DATA FROM TABLES 14 & 15.

Figure 9. Selected Operating Cost-Related Statistical Time Series, September 1974 - August 1975

5. PROJECT FINDINGS AND CONCLUSIONS

Information presented in the preceding chapters is drawn together and analyzed in this chapter from three viewpoints: project objectives, implications of STS operations, and STS services and the community. In addition to comments based upon quantitative information, subjective observations which provide an insight into the system and its reception by the service area population are made. Many of the findings and conclusions set forth in this chapter are transferable to other locales and will prove useful to others as they consider similar services.

5.1 STS PROJECT OBJECTIVES

The following comments and observations concern the extent to which each of the four project objectives set forth in Chapter 1 was achieved.

5.1.1 Meet the Transportation Needs of the Elderly and Handicapped

Approximately 10% of the estimated target population of 18,300 were registered with the system as of August 31, 1975; and, of those registered, using available data and observable trends, between 22% and 30% were using the STS at least once a month. This represents 2 to 3% of the target population. During the final four months of the project, approximately 13% of the STS client trips involved wheelchairs. (Twenty-four percent of the certified clients required wheelchairs, special aids, or walkers.)

5.1.2 Operate a Cost-Effective Method of Transporting the Aged and Disabled

Relative to alternative modes of transportation, the STS, for an average one-way trip, appears to be comparable to local taxi costs. For the STS, the average costs per client and per passenger trip during the last four months of the

service were \$3.40 and \$3.00, respectively. If taxi operators were subsidized for such trips, costs would be \$3.00 for a 3-2/3 mile trip, which is the average trip length for STS users. It is clear that the STS is competitive with taxi trips in the 3-2/3 mile range and beyond. Public transit, while costing considerably less (in the order of \$.55 per passenger), is extremely difficult for the E/H group to utilize. Prices for comparable transportation by social service agencies were not recorded.

Operating costs per passenger and per client trip are made up of some components which tend to increase cost, such as a large service area, fairly long trips, and a large percentage of wheelchair users (13% of all trips) and other components which tend to decrease cost, such as relatively low salaries, associated fringe benefits, and maintenance costs for the vans.

5.1.3 Provide Transportation Services for the Elderly and Handicapped by Means of a Specially Designed System Separate from Public Transit

By offering a service which was much easier (door-to-door service, schedule flexibility, and vehicle entry/exit convenience) for the client to use than traditional public transit or taxi service, STS lessened client dependence on others and, in a sense, increased client mobility. Most STS clients appear to be making trips using STS to the same destinations that they were visiting prior to STS. However, it is not known whether an increase in the frequency of such trips occurred due to the availability of the STS. Based upon STS clients surveyed, it does not appear that the STS generated many trips to new destinations. Only about 5% of the surveyed STS clients indicated that they were using the STS to get to destinations to which they had not previously gone to.

5.1.4 Coordinate the STS With the Existing Public Transit System

Although the STS was organizationally a division of the public transit system, it operated in a fairly autonomous manner, utilizing the CTC as a provider of van drivers (paid for by STS funds), facilities (paid for by STS funds), and accounting support (an in-kind match). With minor exceptions, the STS could have been moved from CTC facilities and continued its operations.

While no action was taken to integrate STS with the CTC schedule, consideration was given to coordinating the two operations. The most feasible method of doing so would have been to use the STS systems as a feeder system to CTC for those STS clients who could physically ride the bus. While there would be no problem in picking up STS clients and delivering them to the nearest bus route going to their destination, a problem would have developed in picking up clients for return to their homes. There was no way of knowing when a client would arrive at a certain bus stop on their return trip because there was no communications equipment on the buses to convey this information. The cost of installing radios in all the buses was prohibitive since there were not sufficient funds in the STS grant to do so.

5.2 IMPLICATIONS FOR STS SYSTEM PLANNING AND OPERATIONS

As in any new and specialized transportation service, the best initial planning does not lead to problem-free system operations. In considering the introduction of a similar specialized service, the following points should be noted:

- 1) A preliminary systems analysis on total vehicle-related requirements and operational procedures should be made, to avoid unnecessary and costly modifications in both hardware and operations.
- 2) With respect to the vans (which, in the Baton Rouge STS project, were not particularly well-suited for E/H clients), consideration must be

given to ease of entry and exit, seating arrangements, ramp and lift loading devices, wheelchair tie-down devices, engine configuration and subsequent impact on maintenance time, and effect on vehicle vertical clearances of radio antennas and potential car-top lifts.

- 3) With respect to dispatch/vehicle communications, adequate time should be allowed to obtain and install equipment, apply for and receive FCC radio frequency assignment and license, and generate appropriate operating procedures.
- 4) Rigorous procedures should be followed (e.g., statistically designed surveys) to develop target population estimates, not only in terms of size but also disability mix and residence location. For example, for the STS, approximately 13% of the client trips involved wheelchairs; and, of these, better than one-third involved the assistance of at least one additional companion. The number of such clients not only has an impact on possible vehicle seating configurations but also on scheduling and schedule adherence. At the same time, client eligibility requirements should be carefully set up and should be flexible enough to be adjusted to meet special needs for service. In addition, criteria for system utilization (i.e., medical, paramedical, therapeutic, etc.) should also be set up to allow for

modifications to improve system productivity in the event of initial underutilization. Origin/destination information should be collected and analyzed periodically to allow for the development of tighter schedules and, hence, the reduction of unnecessary duplications on routings and consequently an increase in system efficiency. Such a process would also permit an effective increase in potential system capacity.

- 5) While extensive training is not necessary, system drivers should be made aware of the special needs of the E/H clients.

5.3 STS SERVICES AND THE COMMUNITY

The impact of specialized services such as the STS cannot always be easily assessed. Based upon sample information, better than 90% of the system users considered the service "good" or "excellent." Impacts of major importance relate to the clients' and relatives' attitudes, as well as medical benefits such as client rehabilitation and medical facility reactions.

Although there were undoubtedly many more such situations, isolated cases, emphasizing these impacts, were noted by the STS project management:

- 1) The STS made it possible for individuals with no other mode of transportation to visit relatives at hospitals or clinics and other destinations more frequently and without burdening others.
- 2) Several instances were noted in which user rehabilitation was effected. This

phenomenon may not have occurred without the STS.

- 3) At a major health clinic, patient cancellation/no-shows dropped between 60% and 70% within the first year of STS operation.
- 4) Staff from the Southern University Transportation Center conducted interviews with four medical facilities and reported the following:¹

"At the Baton Rouge Association for Retarded Citizens, it was stressed that the transportation services provided by STS made possible the attendance of several students who had no other means of transportation.

"Clients attending the Cerebral Palsy Center had very good attendance records and were exceptionally punctual for appointments. The center spokesman also made special mention of the cooperativeness of STS in making adjustments in schedules whenever necessary.

"The spokesmen for the physical therapy division of Medi-Center of America were quite pleased with the services provided by STS. However, they expressed a need for better training of drivers in operating the wheelchair lifts, and they underscored the importance of the handicapped persons' being accompanied by aides.

¹Source: Transportation Center, Southern University, Baton Rouge, Louisiana; "The Special Transportation Services Project...", pp. 30-31.

"Officials at the Perkins Radiation Center described STS as being a 'Godsend' to many of its patients. Persons at all of the facilities stressed the promptness, courteousness, and helpfulness of the drivers, and viewed STS as a much-needed public service which they hoped would be continued."

APPENDIX A. SELECTED STS FORMS AND INSTRUCTIONS

In this appendix, some selected forms and instructions used by the STS are presented with brief descriptions of their use and referenced, as appropriate, to the main text.

A.1 STS APPLICATION INSTRUCTIONS (Figure A-1)

These application instructions were given to the individuals taking applications over the telephone. The STS application appears as Figure 4, Section 3.2.

A.2 STS ELIGIBILITY CARD (Figure A-2)

This STS eligibility card was mailed to clients to serve as a reminder that they were eligible for the service.

A.3 STS DRIVER'S SCHEDULE (Figure A-3)

Each driver received a schedule on this form every morning when checking in for work. The form was two pages, one for morning pick-ups and the other for afternoon pick-ups.

A.4 COORDINATOR/DISPATCHER APPOINTMENT SHEET (Figure A-4)

The appointment sheet was used by the coordinator/dispatcher. As a telephone request for service was received, the client's name was checked with the master file to insure eligibility; then the appropriate information was recorded.

A.5 OPERATOR'S DAILY REPORT (Figure A-5)

The Operator's Daily Report form is a CTC form modified for STS use. The STS driver would record the van number, sector, date,

time in and out, beginning and ending van mileage, and the amounts of fuel and oil purchased.

A.6 VAN MILEAGE PER VAN PER DAY (Figure A-6)

The data tabulated on this form were compiled daily by the administrative clerk from the Operator's Daily Report sheets. The table indicates the number of miles per day per van for a particular sector in a given month.

A.7 FUEL (IN GALLONS) AND OIL (Figure A-7)

The van fuel and oil consumption was recorded daily for each van during a given month. The information was obtained from the Operator's Daily Report sheets and compiled by the administrative clerk.

1. In the first item obtain the name, address, age, and phone number of the applicant who will use the service.
2. Under the item titled DISABILITY, we hope to ascertain the nature of the handicap and what special problems may be involved in transporting the applicant. Especially important is finding out if the applicant uses a wheelchair, walker or other special aid.
3. After completing the next item (What medical facilities do you attend?) the eligibility criteria should be consulted to ensure the applicant is eligible for service at this time. Some applicants may be eligible and not need transportation to medical facilities but desire transportation to other than medical facilities. In these cases complete an application and inform the applicant that while we are not presently servicing their requested destination(s) we may expand service in the future to include their destination(s). At which time, we will contact them and inform them of when the service they requested is available. The key point to remember in determining eligibility is "A person is eligible for reason of a handicap, age or both, can not use the public transit system or could not use the public transit system if it was made available in his area."
4. The next item is self explanatory.
5. The item concerning need of a companion is important so that vans will not be scheduled for loads beyond their seating capacity.
6. The next item is the one to be completed for applicants who wish transportation to other than medical facilities. Even applicants who request service to medical facilities should be asked what other destinations they would like to have service to.
7. The last item is to be used to verify the applicants disability. The screening agency will need to contact the referral agency to ensure the applicant is eligible. Any agency that can establish the applicant's condition is acceptable. Doctors offices are also acceptable.
8. After the application is completed, the following items should be accomplished, assuming at this point the applicant is eligible based on the information received from the applicant.
 - a. Consult the schedule and inform the applicant what day and time service is available to the facilities he requested. Days and times for service to doctors offices and Facilities not specifically listed will be scheduled at times shown under the listing "All Other Facilities". Medical appointments should be scheduled between the scheduled hours of pick-up and return.
 - b. Inform the applicant that it will take several days before we can place his name on our master file. Once the applicants's name is

Figure A-1. STS Application Instructions

on the master file he can call the STS office for service. The number is 344-4197.

- c. Next call the referral agency and verify eligibility. Mark at the bottom of the application OK and circle it if verification is confirmed by the referral agency. If the applicant is not eligible please state reason for ineligibility at the top of the application (i.e. outside service area, desires other than medical facilities, etc.). In cases where eligibility can not be determined, send applications to STS and we will make the determination.
- d. All applications (eligible and non-eligible) are then to be sent or delivered to:

Capitol Transportation Corporation
Special Transportation Services
1111 Seneca Street
Baton Rouge, La. 70805

Figure A-1. STS Application Instructions (Continued)

**YOU ARE ELIGIBLE FOR
TRANSPORTATION SERVICES
FROM STS. CALL**

344-4197

WHEN YOU NEED TRANSPORTATION.

Figure A-2. STS Eligibility Card

Name _____	Dr. _____
Address _____	Location _____
Phone _____	Date _____ Pick-up _____
Appointment Time _____	W/C _____ A/R _____
Name _____	Dr. _____
Address _____	Location _____
Phone _____	Date _____ Pick-up _____
Appointment Time _____	W/C _____ A/R _____
Name _____	Dr. _____
Address _____	Location _____
Phone _____	Date _____ Pick-up _____
Appointment Time _____	W/C _____ A/R _____

Legend:

Pick-up -- Time STS will pick up client
Appointment time -- Doctor's appointment time
W/C -- Wheelchair
A/R -- Additional Rider

Figure A-4. Coordinator/Dispatcher Appointment Sheet

Operator's Daily Report

Run No. _____ Line _____ Date _____

TRANSFERS ISSUED AND RECEIVED

CLOSING		ISSUED	CLOSING		ISSUED
OPENING			OPENING		
CLOSING		ISSUED	CLOSING		ISSUED
OPENING			OPENING		

Total Transfers Issued _____ Total Transfers Received _____

SCHEDULE FAILURES

TIME	NO. BUS	CAUSE	PLACE	ONE WAY TRIPS LOST

REPORT TIME	
TRAVEL TIME	
REPORT TIME	
TRAVEL TIME	
OTHER	

SCHEDULED RUN TIME

Time On: _____ M. Time Off: _____ M.
 Operator's Badge
 Signature _____ No. _____

FAREBOX READINGS

FARE BOX NO.		CASH	TOKEN	MILEAGE
	CLOSING			Bus No. _____
	OPENING			Miles _____
	DIFF.			Bus No. _____
	CLOSING			Miles _____
	OPENING			Bus No. _____
	DIFF.			Miles _____
	CLOSING			Bus No. _____
	OPENING			Miles _____
	DIFF.			

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Figure A-5. Operator's Daily Report

SEPTEMBER 1975

VAN	1	2	3	4	5	6	TOTAL
DATE							
1							
2	108-1*	109-2	106-3		83-4	92-5	
3	129-1	118-2	95-4		137-3	99-5	
4	64-2	90-2	158-4	145-1	137-3	144-5	
5	37-5	134-2	136-4	157-4	161-3	112-5	
6							
7							2551
8		146-2	148-3	155-1	168-4	142-5	
9		173-2	168-4	128-1	118-3	136-5	
10	132-2		138-3	151-1	148-4	118-5	
11	158-2		146-4	152-1	124-3	140-5	
12	139-2	140-3		149-1	184-4	137-5	
13							
14							3638
15	117-2		125-3	111-1	113-4	139-5	
16	158-2		134-3	140-1	166-4	124-5	
17	159-2		143-3	125-1	165-4	98-5	
18	133-2		140-3	121-1	180-4	162-5	
19	133-2		143-3	137-1	148-4	124-5	
20							
21							3438
22	133-2		155-3	143-1	169-4	136-5	
23	113-2		159-3	148-1	176-4	122-5	
24	134-2	38-3	88-3	142-1	169-4	77-5	
25	133-2		139-3	137-1	163-4	159-5	
26	105-2		139-3	134-1	161-4	130-5	
27							
28							3502
29	136-2		135-3	108-1	142-4	161-5	
30	146-2		140-3	157-1	154-4	118-5	

*Sector number assigned van.

Figure A-6. Van Mileage Per Van Per Day

SEPTEMBER, 1975

VAN	1	2	3	4	5	6
DATE						
1						
2	28.0	17.0	21.0		19.0	21.0
3		1qt.oil 17.0	13.0			16.0
4		17.0	17.0	27.0	26.0	15.0
5	31.0	12.0	18.0	21.0	17.0	21.0
8		18.0		23.0	18.0	16.0
9		30.0	18.0		19.0	20.0
10			25.0	18.0 20.0	16.0	18.0
11	24.0				27.0	14.0
12	17.0 22.0	30.0		25.0		39.0
15			27.0	21.0	14.0 26.0	18.0
16	18.0		27.0	15.0		17.0
17	20.0			18.0	20.0	20.0
18	20.0		2qt.oil 21.0	16.0	19.0	1qt.oil 12.0
19	19.0		30.0		22.0	21.0
22	19.0			21.0	19.0	16.0
23	15.0		20.0	17.0	1qt.oil 19.0	17.0
24	14.0			18.0	19.0	15.0
25	16.0			16.0	18.0 19.0	
26	17.0		26.0	15.0		28.0
29	14.0		31.0	15.0	16.0 20.0	16.0
30	18.0			29.0	18.0	20.0

Figure A-7. Fuel (in gallons) and Oil

APPENDIX B. A TYPICAL DAY IN THE OPERATION OF THE STS

The following is a sequential account of the STS operation on a typical day:

6:45 a.m. The coordinator/dispatcher arrives and opens the office, then checks the status of the vans with the CTC maintenance department to see if any vans are to be held for maintenance or repairs.

Next, vehicle assignments are made, based on the scheduled demands for each sector and the number of vans available. In some cases, drivers' schedules are adjusted, based on equipment availability.

7:00 a.m. The drivers report in and receive their schedules (organized by sector), van assignments, keys, and gasoline credit cards. Before leaving, each driver reviews his schedule, noting any special instructions. (See Appendix A, Figure A.3, for sample driver's schedule.)

7:10 a.m. All drivers depart for their first passenger pick-ups, scheduled for 7:30. The coordinator/dispatcher begins to accept calls for the next day's service, as well as cancellations for this day, if any.

When a service request call is received, the coordinator/dispatcher first checks the master card file containing the names of all the eligible clients. An appointment is made only if the

individual requesting service is represented in the master card file. The coordinator/dispatcher records the necessary information; and, after checking his schedule board, he informs the client as to pick-up time. (Refer to Appendix A, Figure A.4, for sample appointment sheet.)

7:30 a.m. Drivers pick up their first clients.

8:30 a.m. The remainder of the office staff arrives. The administrative clerk begins compiling a passenger list from the previous day's drivers' schedules. This process facilitates information retrieval concerning the number of passengers, number of passenger trips, and passenger pick-up locations and destinations on any given day. If necessary, the time at which each passenger was picked up or dropped off could be determined, since drivers record that information on their schedule sheets.

After compiling the passenger list, the administrative clerk records each van's mileage for the previous day, obtained from each driver's daily report. These forms are similar to those used by regular CTC bus drivers, but are modified for STS's use. The amounts of fuel and oil purchased for each van are also recorded. (See Appendix A for copies of operator's daily report, mileage sheet, and fuel oil record: Figures A-5, A-6, and A-7, respectively.) If any applications are received from the screening agencies, the administrative clerk prepares a card for the master file and mails an eligibility card to those applicants who are determined to be eligible for service. (An eligibility card specimen is presented in Appendix A, Figure A-2.) The administrative clerk spends the rest of the day assisting the coordinator/dispatcher in handling calls requesting service.

11:30 a.m. Lunch break for the administrative clerk.

12:30 p.m. Lunch break for the coordinator/dispatcher. The administrative clerk temporarily assumes the coordinator/dispatcher's duties after being briefed.

Drivers take lunch breaks to fit into client pick-up and delivery schedules.

1:30 p.m. Coordinator/dispatcher returns from lunch and begins to prepare the next day's schedules from the appointment sheets. Appointments taken for subsequent days are recorded on a desk calendar until the day prior to requested service. The schedule worksheets used by the coordinator/dispatcher are identical to the schedule sheets prepared for the drivers. After the worksheets are prepared for the next day's service, the administrative clerk types the drivers' copies. The worksheets are retained by the coordinator/dispatcher through the following day. Additional requests, if any, for the next day's service are pencilled in on both drivers' and worksheet copies.

4:30 p.m. No more calls for service are accepted. Drivers check in after completing their schedules and refuelling the vans. As they check in, the administrative

clerk collects schedules, keys,
and gasoline credit cards, and notes
the closing mileage on each driver's
daily report.

5:00 p.m. The office closes. Drivers not check-
ed in by this time return schedules,
keys, and gasoline credit cards to the
CTC dispatcher's office.

APPENDIX C. ON-BOARD SURVEYS

Two on-board surveys were conducted by the Southern University Transportation Center staff, the first during February 3-6, 1975 and the second during November 5-6, 1975. Copies of the survey forms appear as Figures C-1 and C-2, respectively.

There were 157 responses for the first survey and 111 for the second.

The survey forms were filled out by the interviewer.

During the days on which the surveys were conducted, not all clients were interviewed.

Transportation Center
Southern University

ON-BOARD SURVEY OF THE BATON ROUGE
SPECIAL TRANSPORTATION SYSTEM

February, 1975

1. (Interviewer: Do not ask, but note)
Race: Black _____ White _____ Other _____
Sex: Male _____ Female _____
2. What is the destination and purpose of your particular trip?
a. Destination _____
b. Purpose _____
3. How did you make these trips before this transit system became available?
a. _____ Bus
b. _____ Car (driver)
c. _____ Car (passenger)
d. _____ Taxi
e. _____ Paid someone
f. _____ Walked
4. If regular city buses were to pass in front of your home, would you be willing and able to ride it? Yes _____ No _____ (If yes, skip to #5)

a. IF NO, why not? Disability factors _____; Dislike riding buses _____; Financially unable _____; Present mode - - STS--is satisfactory _____; Other _____

b. IF DISABLE, what is the nature of your disability? _____

5. How well does this transit system serve your overall needs in terms of:

	<u>Excellent</u>	<u>Good</u>	<u>Fair</u>	<u>Poor</u>
a. Reliability	_____	_____	_____	_____
b. Scheduling (on time)	_____	_____	_____	_____
c. Comfort	_____	_____	_____	_____
d. Safety	_____	_____	_____	_____
e. Convenience	_____	_____	_____	_____
f. Other _____ (Specify)	_____	_____	_____	_____
6. What specific changes do you feel should be made in this transit system?

Figure C-1. Survey Form, February 1975

TRANSPORTATION CENTER
SOUTHERN UNIVERSITY

ON-BOARD SURVEY #2 OF THE BATON ROUGE
SPECIAL TRANSPORTATION SYSTEM

November ____, 1975 Time: A.M. ____ P.M. ____

1. Race: Black ____ White ____ Other ____
Sex: Male ____ Female ____
2. What is the destination and purpose of this trip? (NOTE: If this is a return trip home, record information for FIRST LEG of trip only).
A. Destination ____
B. Purpose ____
3. If a city bus were to pass in front of your home regularly, would you ride it to make this trip?
Yes ____ No ____

IF NO, why not?

- ____ a. Dislike riding buses
____ b. Financially unable
____ c. Other
____ d. Disability factor(s)

(Please explain fully)

4. Do you have any disabilities that will prevent you from riding the city bus?
Yes ____ No ____

IF YES, what is the nature of your disability?

- ____ a. Wheelchair patient and/or amputee
____ b. Cardiovascular (Heart)
____ c. Visual impairment
____ d. Mental
____ e. Diabetic
____ f. Cancer patient
____ g. General Weaknesses
____ h. Lack of finance for transportation
____ i. Other (Specify) _____

Figure C-2. Survey Form, November 1975

APPENDIX D. REPORT OF INVENTIONS

A diligent review of the work performed under this contract has revealed no significant innovations, discoveries, or improvements of inventions at this time. In addition, all methodologies employed are available in the open literature.

The findings in this document will be useful to further capabilities throughout the United States in providing needed transportation services for the elderly and handicapped.

HE 18.5
.A37 no. DOT-
TSC-UMTA-

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Form DOT F 1720.2
FORMERLY FORM DOT F



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